IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

This PHOTOFACT Folder Set is

WIRE-SEALED FOR YOUR PROTECTION

to guarantee completeness of contents

DO NOT ACCEPT IF SEAL HAS BEEN BROKEN

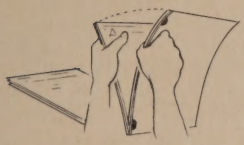
TO OPEN ***JUST DO THIS:***

1

Take hold of the Set with both hands. Place your thumbs directly under the top wire-seal; then, divide the contents equally by putting your thumbs midway through the thickness of the Set. Now, pull the two sections apart at the top, firmly.

2

Repeat this process, pulling close to the wire-seal at the bottom, so that the set is now divided into two equal parts.



3

Continue this "pulling-apart" process with the section in which the wire-seals remain, dividing it in half.

4

Finally, remove the wire-seals left in the last section; this can easily be done with your fingernail or any sharp instrument.

Your "Safety-Sealed" PHOTOFACT Set is now ready for profit-making use . . .

IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

The PHOTOFACT® Servicer

SET 483 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ MAY 1960

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This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

IN THIS ISSUE OF THE SERVICER:

Delco (Receiver) Model R58

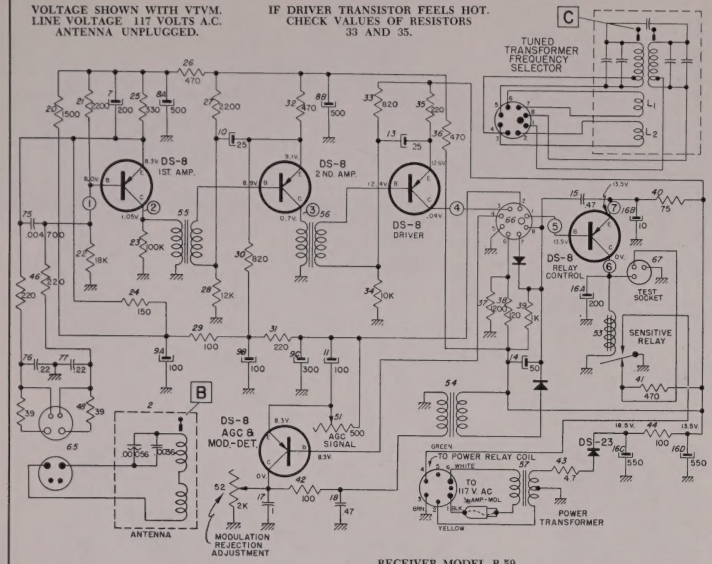
Delco (Receiver) Model R59

Delco (Transmitter) Models TS-58-6V, -12V

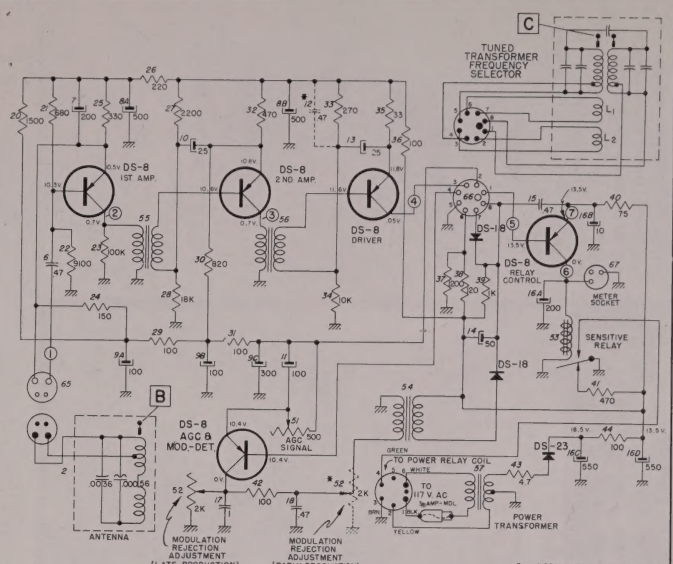
Delco (Transmitter) Models TS-59-6V, -12V

VOLTAGE SHOWN WITH VTVM. LINE VOLTAGE 117 VOLTS A.C. ANTENNA UNPLUGGED.

IF DRIVER TRANSISTOR FEELS HOT. CHECK VALUES OF RESISTORS 33 AND 35.

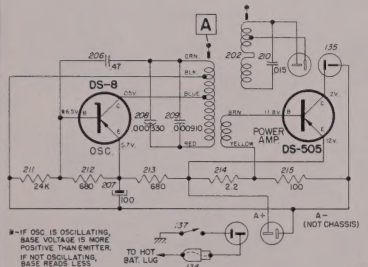


RECEIVER MODEL R-59

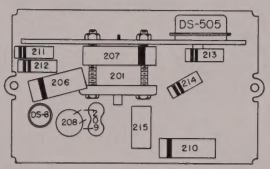


* - USED IN EARLY PRODUCTION

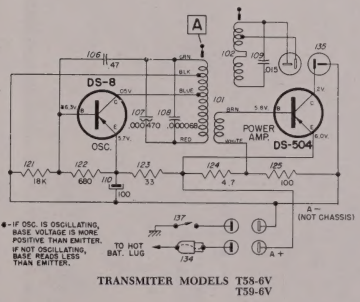
RECEIVER MODEL R58


DS-8
OSC.
POWER AMP.
DS-505
* - IF OSC. IS OSCILLATING, BASE VOLTAGE IS MORE POSITIVE THAN EMITTER. IF NOT OSCILLATING, BASE READS LESS THAN EMITTER.
TO HOT BAT. LUG
A+
A- (NOT CHASSIS)

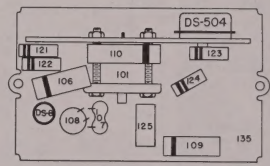
TRANSMITTER MODELS T58-12V
T59-12V



PARTS LAYOUT
TRANSMITTER MODELS T58-12V
T59-12V


DS-8
OSC.
POWER AMP.
DS-504
* - IF OSC. IS OSCILLATING, BASE VOLTAGE IS MORE POSITIVE THAN EMITTER. IF NOT OSCILLATING, BASE READS LESS THAN EMITTER.
TO HOT BAT. LUG
A+
A- (NOT CHASSIS)

TRANSMITTER MODELS T58-6V
T59-6V



PARTS LAYOUT
TRANSMITTER MODELS T58-6V
T59-6V

Schematic Diagrams Courtesy of Delco Radio Div., General Motors Corp.

The receiver antenna can be peaked, but this should not be necessary unless the antenna is replaced.

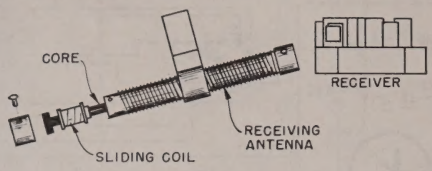


FIGURE 1

Procedure:

1. Connect a d. c. voltmeter across sensitive relay (Test socket #67).
2. Remove end caps on antenna and push core out of fiber tube.
3. Point end of antenna close to receiver. (Point end which gives most voltage.)
4. Adjust either sliding coil on antenna for maximum relay voltage.

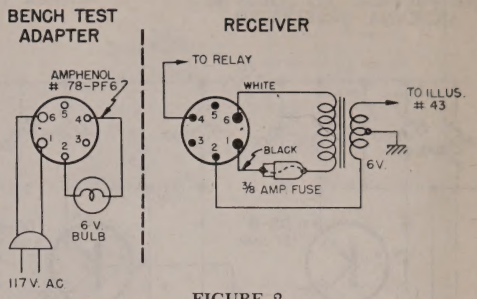
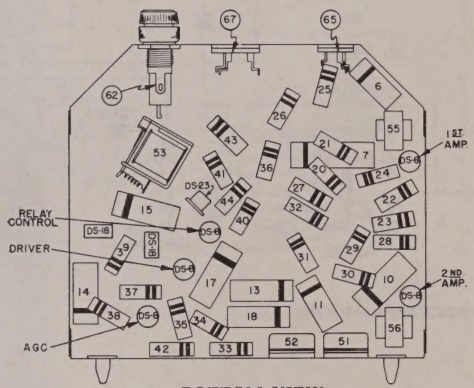


FIGURE 2

BENCH TEST SET UP

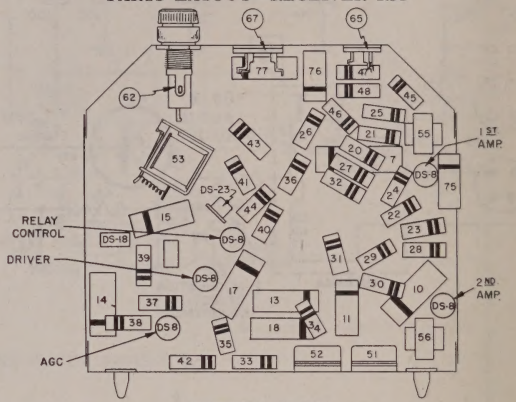
The receiver must be connected to 110-120 volt a. c. A six prong amphenol socket should be used (see Fig. 2) and a 6 volt light bulb may be connected to indicate when the receiver relay energizes. A jumper connected between the normally closed relay contact and chassis should be used when the receiver is operated with a bench test adapter. This jumper maintains a constant B+ voltage to the receiver regardless of whether the relay is closed or open.

PARTS LAYOUT—RECEIVER R58

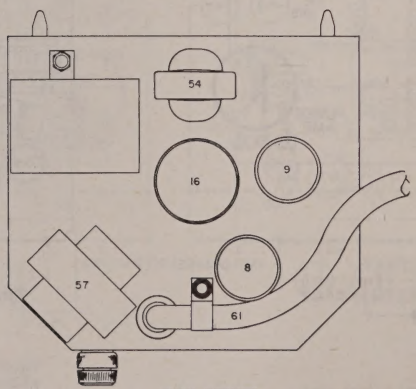


BOTTOM VIEW

PARTS LAYOUT—RECEIVER R59



BOTTOM VIEW

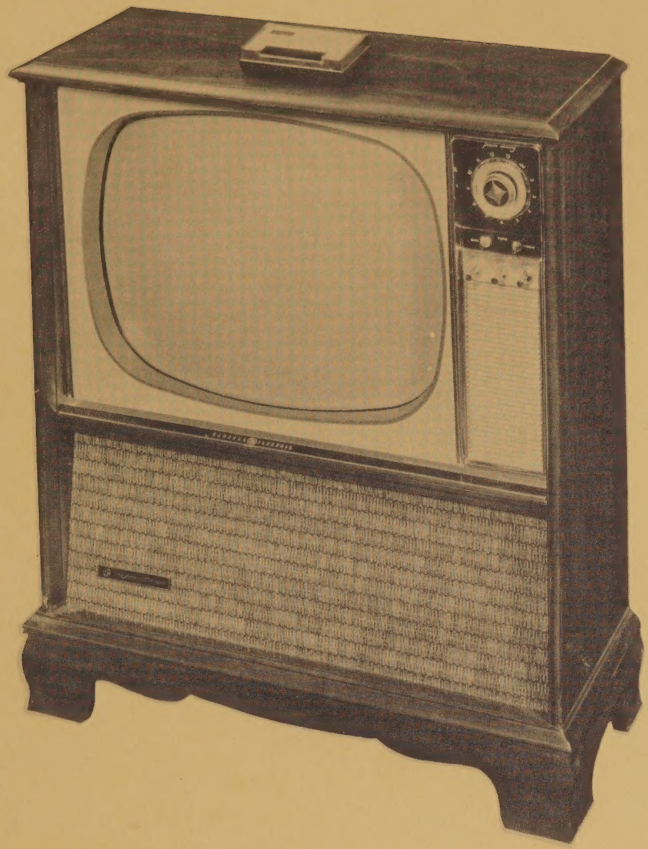


TOP VIEW

PHOTOFACT® Folder with CIRCUITRACE®

GENERAL ELECTRIC MODELS 21C3567, 70, 71, 73, 75, 76, 80, 81, 85, 86, 21T3559 & UHF (Ch. U4)

GENERAL ELECTRIC MODELS 21C3567, 70, 71, 73, 75, 76, 80, 81, 85, 86, 21T3559 & UHF (Ch. U4)



MODEL 21C3580 (CH. U4)

GENERAL ELECTRIC MODELS 21C3567, 70, 71, 73, 75, 76, 80, 81, 85, 86, 21T3559 & UHF (Ch. U4)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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PHOTOFACT® Folder with CIRCUITRACE®

GENERAL ELECTRIC MODELS 21C3567, 70, 71, 73, 75, 76, 80, 81, 85, 86, 21T3559 & UHF (Ch. U4)

GENERAL ELECTRIC MODELS 21C3567, 70, 71, 73, 75, 76, 80, 81, 85, 86, 21T3559 & UHF (Ch. U4)

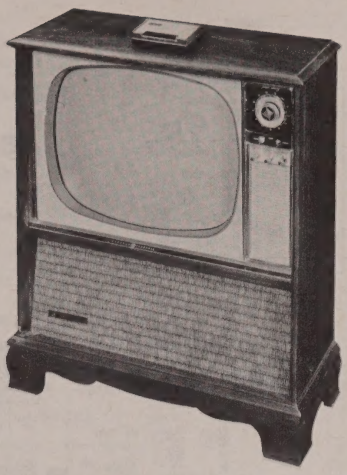
DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL FOR MODEL 21C3580

1. Remove 6 push-on type knobs from front of set.
2. Remove 11 wood screws holding rear cover. Remove rear cover.
3. Remove speaker leads, hi-voltage lead, picture tube socket, remote control power lead plug, inside antenna plug, and yoke clamp.
4. Remove 4 chassis bolts from bottom of chassis. Remove 1 wood screw holding tuner mounting bracket at upper left rear of cabinet.
5. Slide yoke off picture tube and remove chassis.
6. Remove remote control antenna plug.
7. Remove 2 wood screws holding remote control chassis.
8. Remove remote control chassis.

PICTURE TUBE REMOVAL:

1. Remove chassis.
2. Remove 4 metal screws holding picture tube bracket at the bottom.
3. Remove 2 nuts holding picture tube mounting strap at the top.
4. Remove picture tube.



MODEL 21C3580 (CH. U4)

TRADE NAME	General Electric	MODELS	CHASSIS
		21C3567, 21C3570, 21C3571, 21C3573, 21C3575, 21C3576, 21C3580, 21C3581, 21C3585, 21C3586, 21T3559, & UHF .... Wireless Remote Control Transmitter RW-324	U4
MANUFACTURER	General Electric Co., Appliance & Television Receiver Div., Louisville, Ky.		
TYPE SET	Television Receiver (Some Models with Wired Remote Control or Wireless Remote Control)		
TUBES	TV: VHF-Seventeen, UHF-Eighteen Remote Control Receiver: Two		
TRANSISTORS	Remote Control Transmitter: One		
POWER SUPPLY	110-128 Volts AC, 60 Cycle		
RATING	VHF, With Wireless Remote Control (When Tuning): 300 Watts, 1.9 Amp. @ 117 Volts AC VHF, With Wireless Remote Control (Not Tuning): 175 Watts, 1.6 Amp. @ 117 Volts AC VHF, Less Wireless Remote Control (When Tuning): 290 Watts, 1.8 Amp. @ 117 Volts AC VHF, Less Wireless Remote Control (Not Tuning): 165 Watts, 1.5 Amp. @ 117 Volts AC		
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 4 screws holding the trim strip at the bottom edge of the safety glass. Tilt glass out and remove.

FUSE

Two fuses and a fuse wire are used for low voltage power supply, horizontal sweep circuit, and filament protection. (For location, see M3, M4 and M5 on Video, Sound Printed Board Photo.)

TUNER OSCILLATOR ADJUSTMENTS

To touch-up the VHF Oscillator, it is necessary to remove the chassis. (See "Disassembly Instructions".)

AGC

The AGC may be varied by means of an AGC control. (For location, see "Tube Placement Chart.")

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Frequency Slug (B1).

WIDTH

The width may be varied by a Width Switch. (For location, see "Tube Placement Chart".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Ratio Detector secondary (A11) located top of chassis.

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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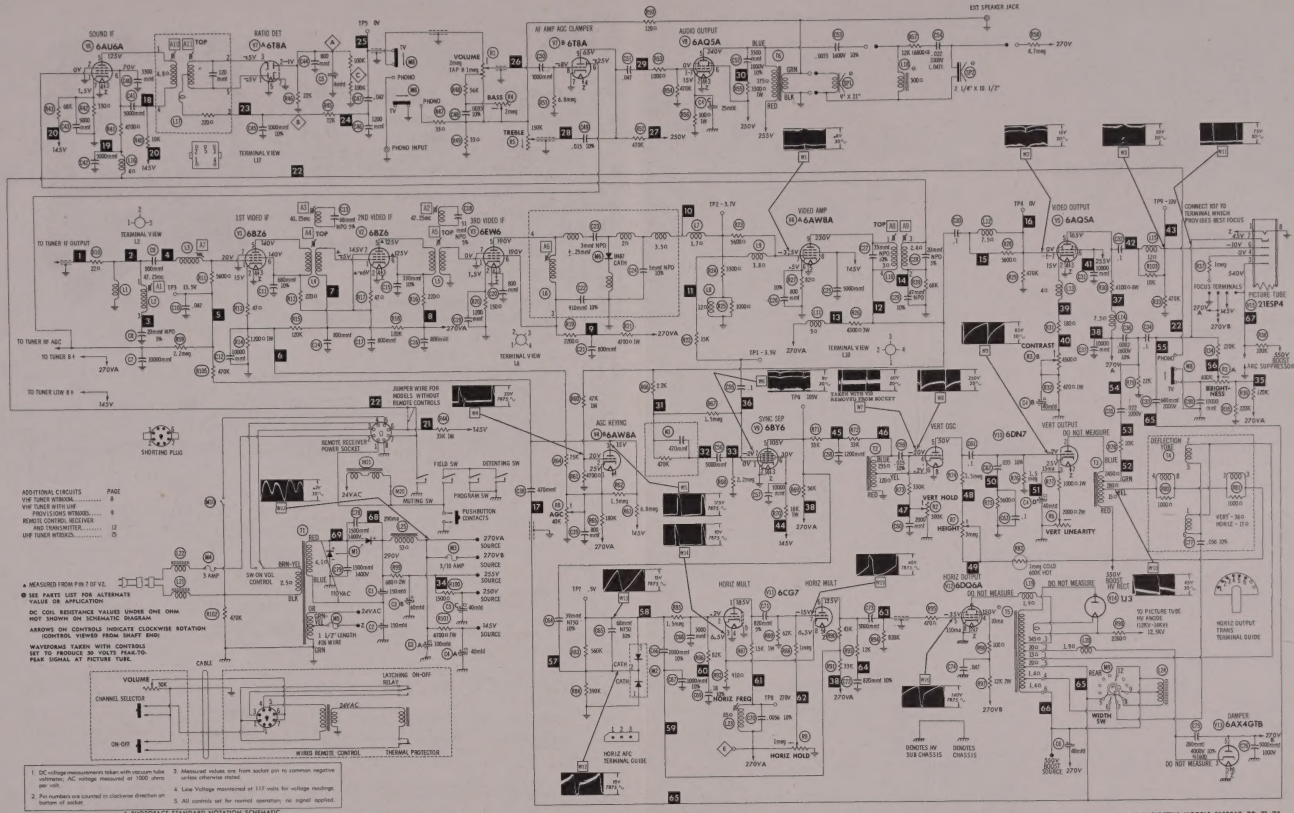
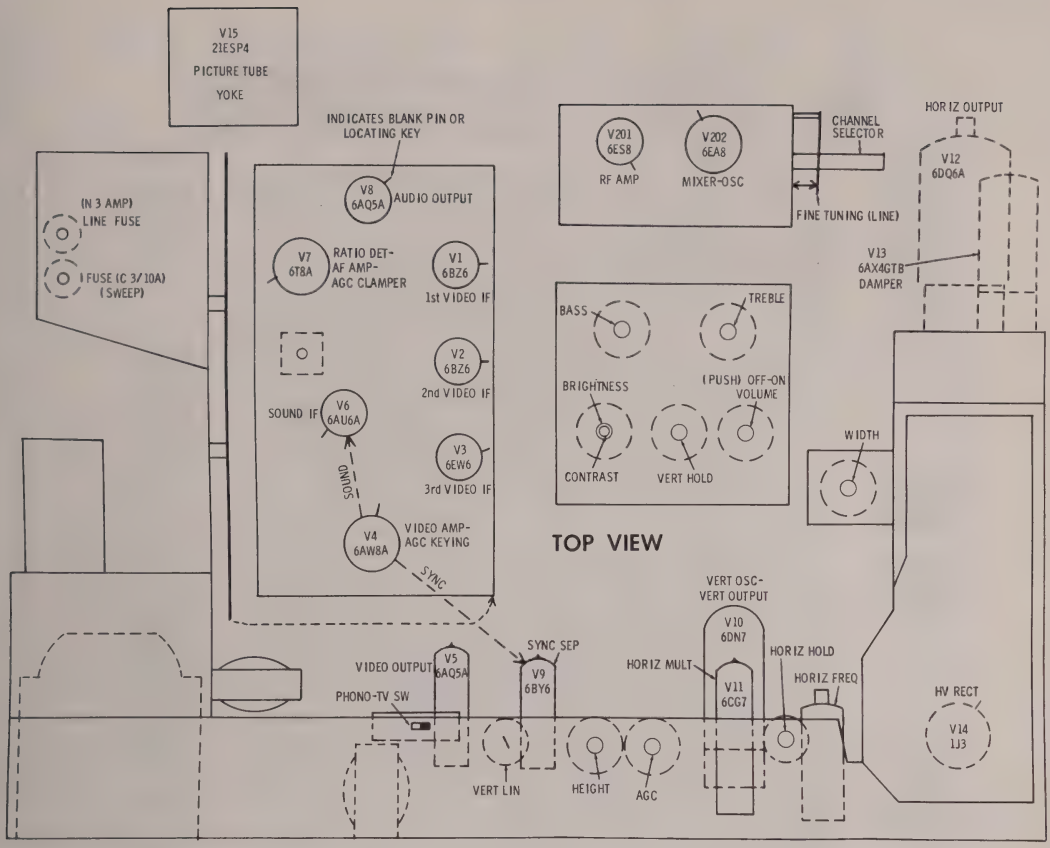
JA871

SET 483 FOLDER 1


SOUND IF
6AU6A
RATIO DET
6T8A
AF AMP AGC CLAMPER
6T8A
AUDIO OUTPUT
6AQ5A
EXT SPEAKER JACK
VOLUME
BASS
TREBLE
PHONO
PHONO INPUT
TERMINAL VIEW L17
TERMINAL VIEW L2
1ST VIDEO IF
6BZ6
2ND VIDEO IF
6BZ6
3RD VIDEO IF
6EW6
VIDEO AMP
6AW8A
VIDEO OUTPUT
6AQ5A
TERMINAL VIEW L13
TERMINAL VIEW L6
TO TUNER IF AGC
TO TUNER B+
TO TUNER LOW B+
CONTRAST
BRIGHTNESS
FOCUS TERMINALS
PICTURE TUBE
21ESP4
ARC SUPPRESSOR
AGC KEYING
6AW8A
SYNC SEP
6BY6
VERT OSC
6DN7
VERT OUTPUT
DO NOT MEASURE
VERT HOLD
HEIGHT
VERT LINEARITY
DEFLECTION YOKE
VERT - 360
HORIZ - 1100
JUMPER WIRE FOR MODELS WITHOUT REMOTE CONTROLS
REMOTE RECEIVER POWER SOCKET
SHORTING PLUG
FIELD SW
DETENTING SW
PHOGRAM SW
PUSHBUTTON CONTACTS
FITTING SW
SW ON VOL CONTROL
24VAC
HORIZ MULT
6CG7
HORIZ MULT
HORIZ FREQ
HORIZ HOLD
HORIZ AFC TERMINAL GUIDE
HORIZ OUTPUT
6DQ6A
DO NOT MEASURE
HORIZ OUTPUT TRANS TERMINAL GUIDE
TO PICTURE TUBE HV ANODE
DAMPER
6AX4GTB
DO NOT MEASURE
DENOTES HV SUB CHASSIS
DENOTES CHASSIS
CABLE
VOLUME
CHANNEL SELECTOR
ON-OFF
LATCHING ON-OFF RELAY
WIRED REMOTE CONTROL
THERMAL PROTECTOR
ADDITIONAL CIRCUITS PAGE
VHF TUNER WITH VOM 8
VHF TUNER WITH UHF PREVISIONS WITH VOM 9
REMOTE CONTROL RECEIVER AND TRANSMITTER 12
UHF TUNER WITH VOM 15
▲ MEASURED FROM PIN 7 OF V2.
◉ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 80 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACS
© Howard W. Sams & Co., Inc. 1960
GENERAL ELECTRIC MODELS 21C3567, 70, 71, 73, 75, 76, 80, 81, 85, 86, 21T3559 & UHF (Ch. U4)

TUBE PLACEMENT CHART



GENERAL ELECTRIC MODELS 21C3567, 70, 71, 73, 75, 76, 80, 81, 85, 86, 21T3559 & UHF (Ch. U4)

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (Line), Fuse (Fil.), Rect. (B+)

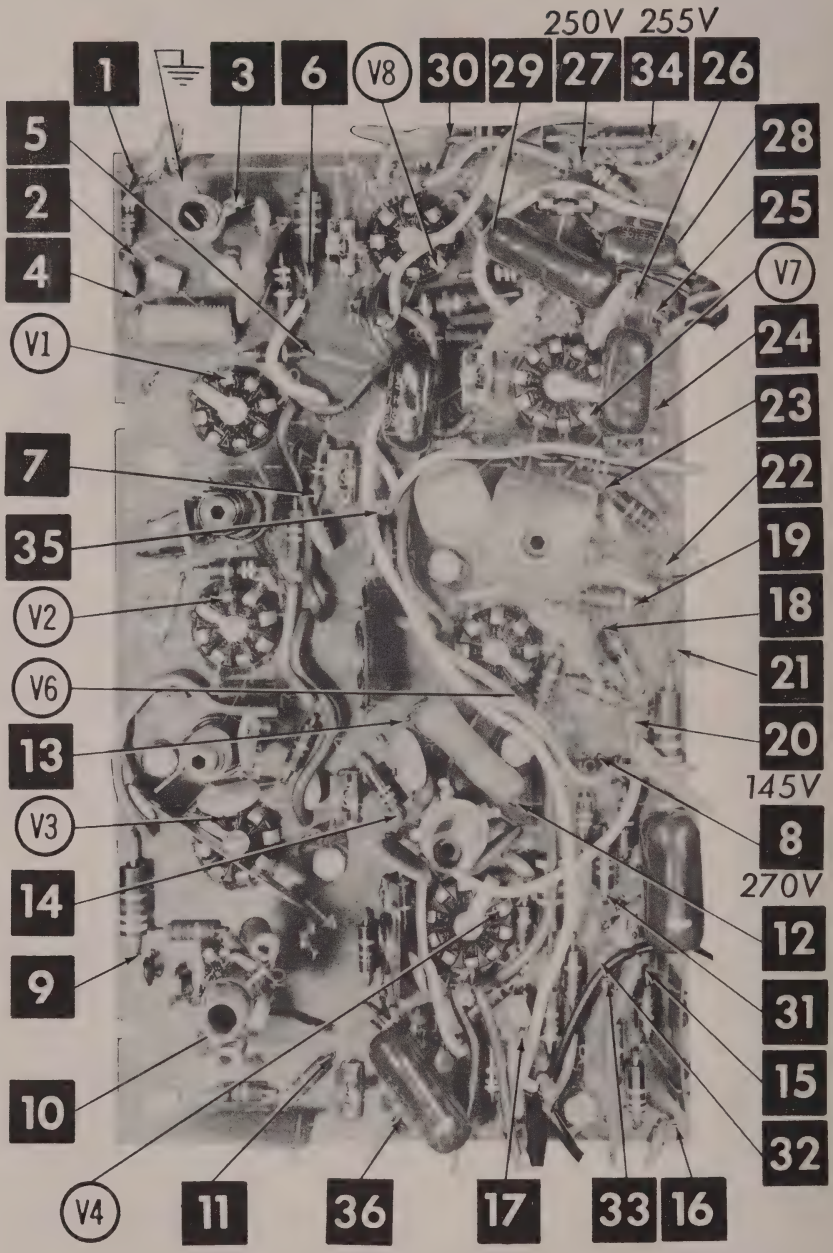
SWEEP FAILURE
No raster, has sound V11, V12, V13, V14, V15
No vertical deflection V10
Poor vert. linearity or foldover V10
Poor horiz. linearity or foldover V11, V12, V13
Narrow picture V11, V12, V13, Rect. (B+)
Vert. off freq. V10
Horiz. off freq. Diode (Horiz. AFC), V11

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V5, V15
Has pic, no sound V6, V7, V8
Overloaded picture V4

SYNC FAILURE
No vert. sync V9
No horiz. sync V9, Diode (Horiz. AFC)
No vert. or horiz. sync V9

FOLDER 1

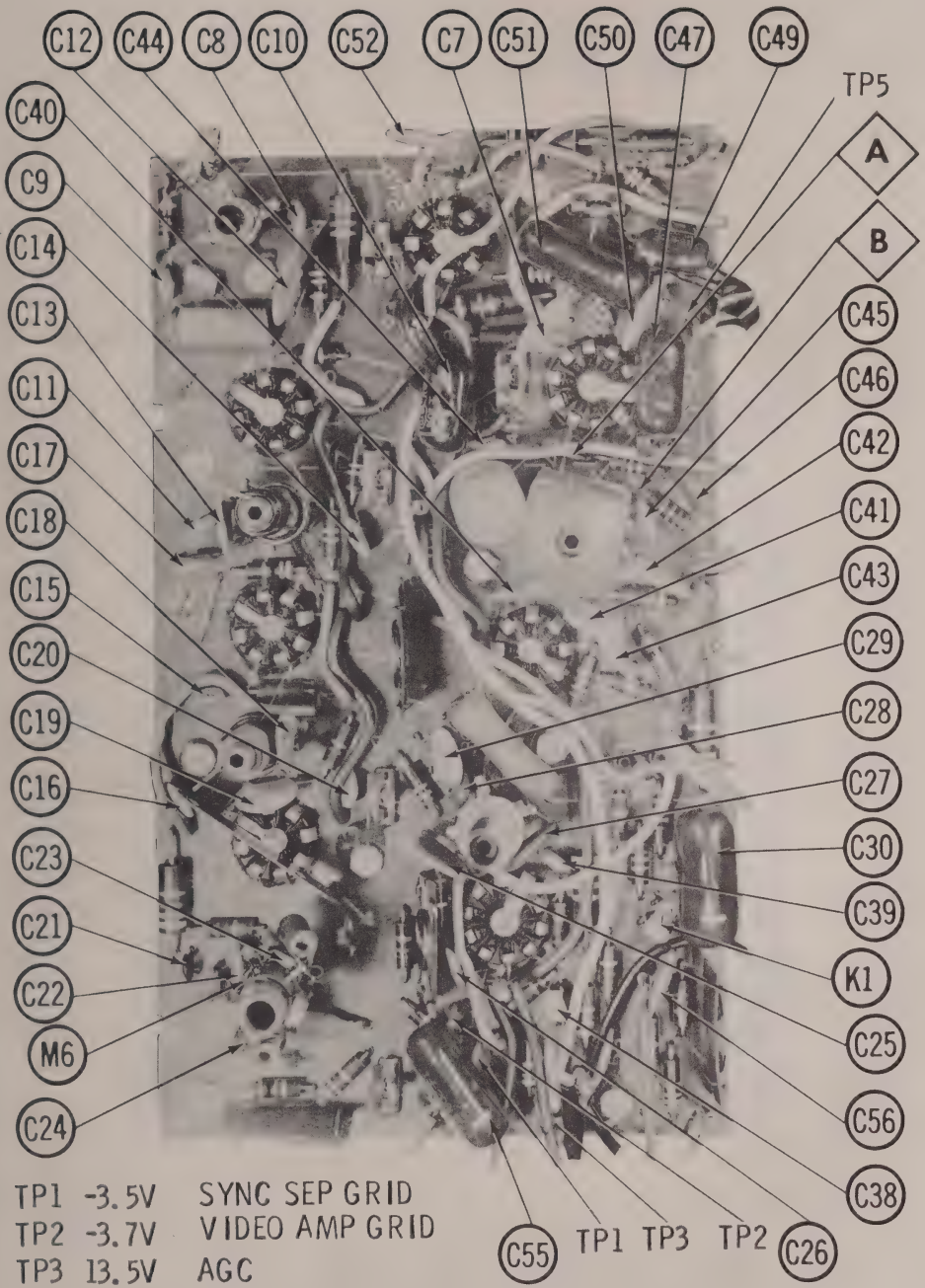
CircuiTrace Numbers 1 thru 36



A Howard W. Sams CIRCUITRACE® Photo

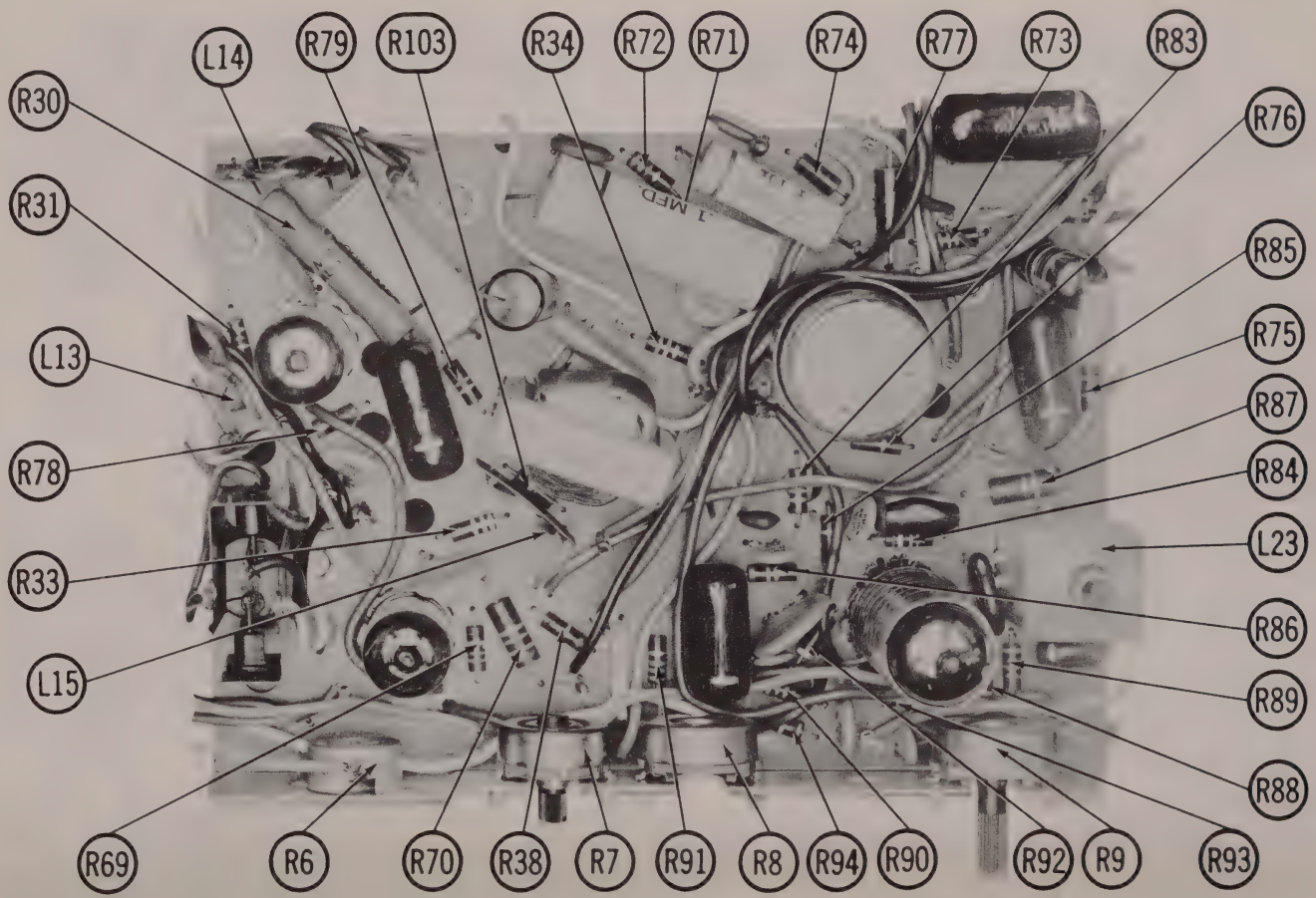
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VIDEO, SOUND PRINTED BOARD



TP1	-3.5V	SYNC SEP GRID
TP2	-3.7V	VIDEO AMP GRID
TP3	13.5V	AGC
TP5	0V	RATIO DET OUTPUT

VIDEO, SOUND PRINTED BOARD — CAPACITOR AND MISC. IDENT.



VIDEO OUTPUT, SYNC, SWEEP PRINTED BOARD, RESISTOR AND INDUCTOR IDENT.

TV ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Set Volume control fully counterclockwise.
Set Contrast control fully clockwise.
Turn Fine Tuning control fully counterclockwise.
Connect the negative lead of a 3 volt bias supply to TP-3. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side to ungrounded tube shield floating over Mixer-Osc. Low side to chassis.	44.0MC (10MC Swp)	47.25MC	Any non-interfering channel	Vert. Amp. thru 10K to TP-2. Low side to chassis.	A1, A2	Adjust for MINIMUM amplitude at marker.
2.	"	"	41.25MC	"	"	A3	"
3.	"	"	42.5MC	"	"	A4	Adjust to place marker at 55% on curve as in Fig. 1.
4.	"	"	45.75MC	"	"	A5	Adjust to place marker at 45% on curve as in Fig. 1.
5.	"	"	44.15MC	"	"	A6	Adjust for maximum gain at marker.
6.	"	"	45.75MC	"	"	Mixer Plate Coil	"
7.	"	"	42.5MC	"	"	A7	"
8.	"	"	42.5MC 45.75MC	"	"		Check for response similar to Fig. 1. If necessary, retouch A4 and A5 for symmetrical response similar to Fig. 1.

4.5MC TRAP ALIGNMENT

Turn the Contrast control fully clockwise.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	High side thru .001mfd to TP-2. Low side to chassis.	4.5MC (400~ 30% AM Mod)	Any non-interfering channel	Vert. Amp. thru detector network (Fig. 2) to pin 7 (cathode) of picture tube. Low side to chassis.	A8	Adjust for MINIMUM 400~ on scope.

SOUND IF ALIGNMENT

A weak TV signal should be substituted for the signal generator, if possible.
The speaker should be connected during alignment.
Connect two matched 100K (±1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	High side thru .001mfd to TP-2. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point Ⓐ. Common to chassis.	A9, A10	Adjust for maximum deflection.
11.	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

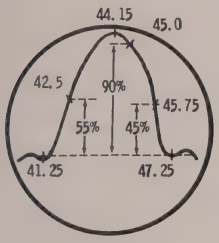


FIG. 1

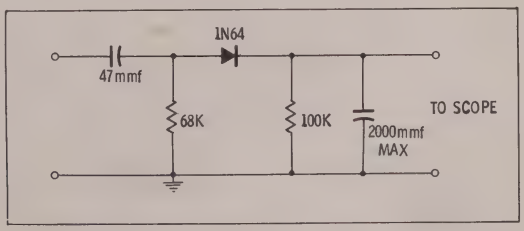
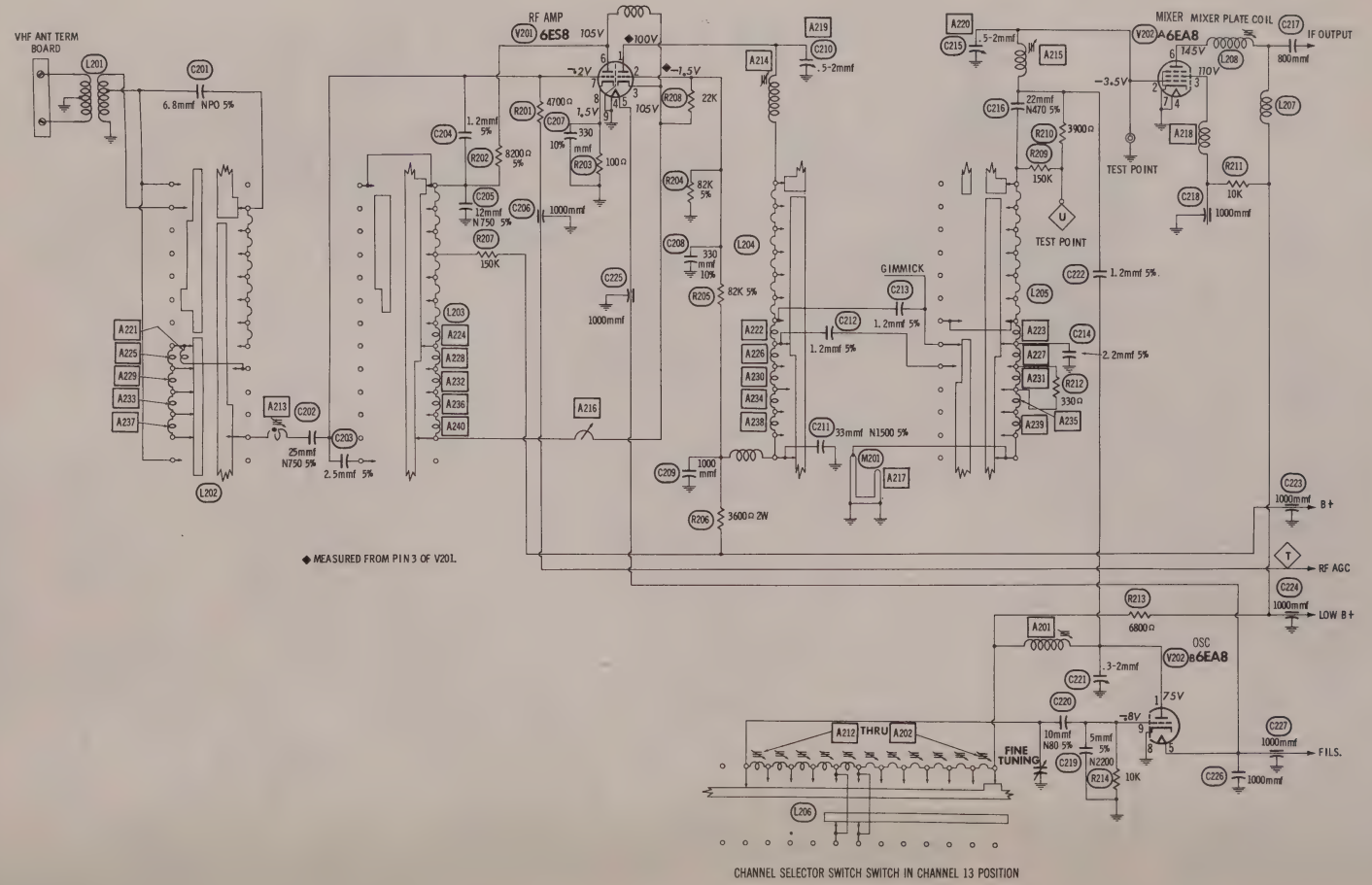


FIG. 2

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGES 13 & 14
REMOTE CONTROL ALIGNMENT & ADJUSTMENTS LOCATED ON PAGE 25



◆ MEASURED FROM PIN 3 OF V201.

CHANNEL SELECTOR SWITCH SWITCH IN CHANNEL 13 POSITION

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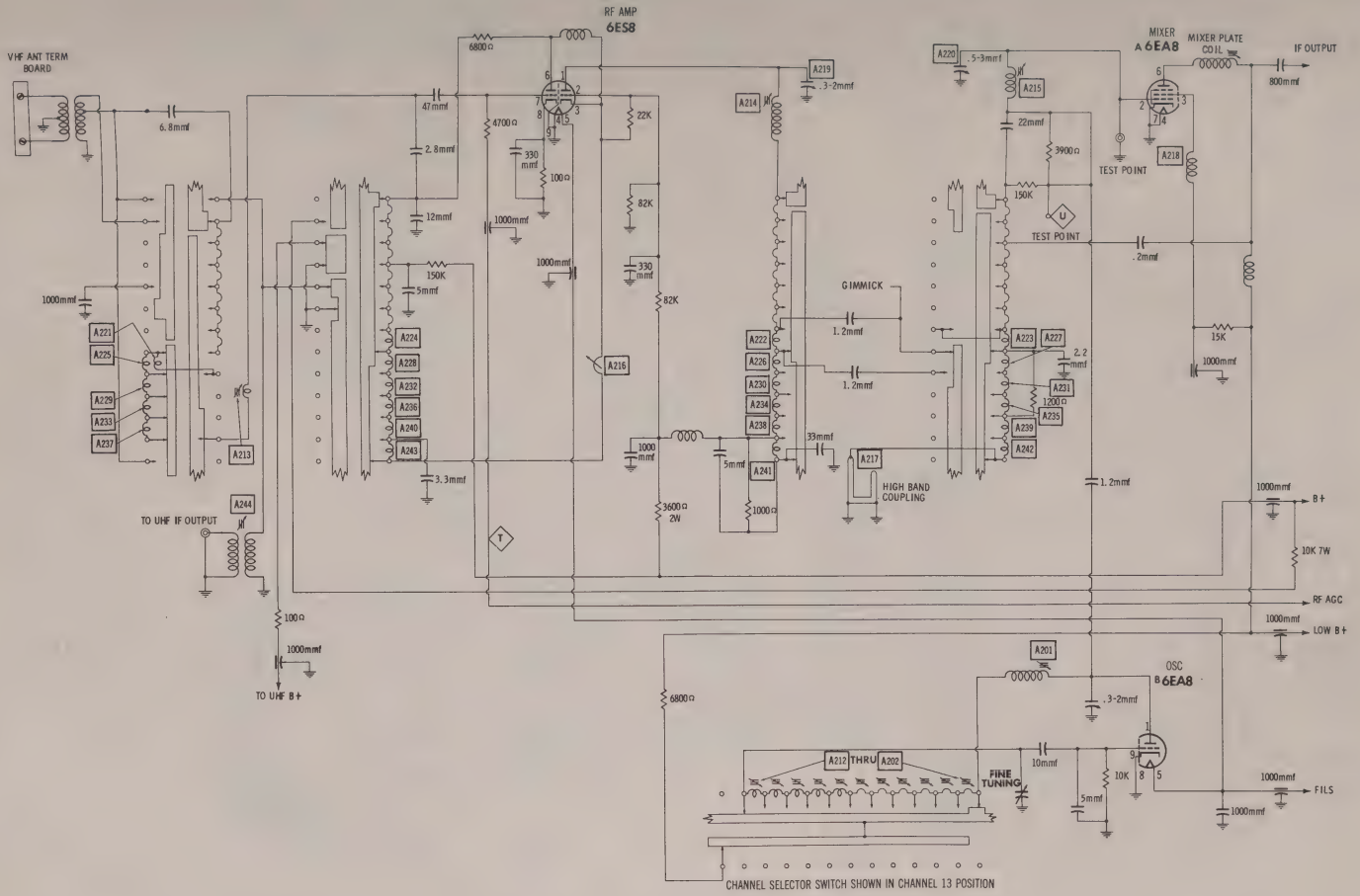
VHF TUNER WT86X84



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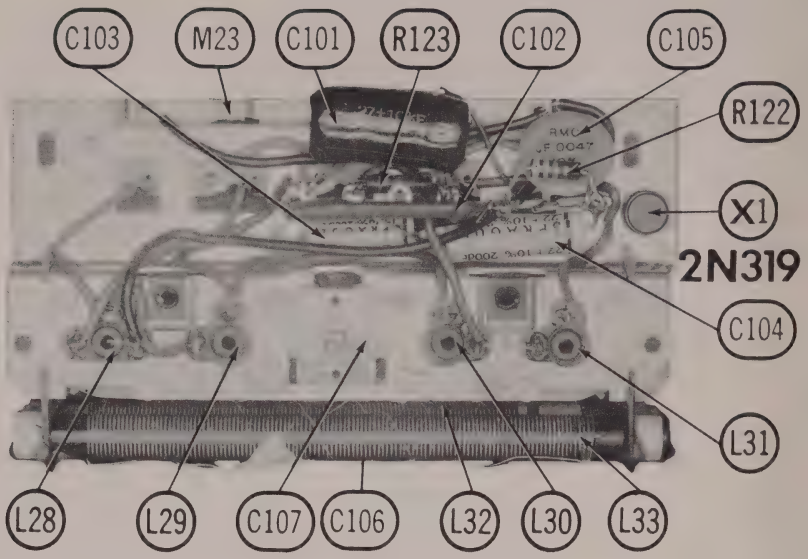
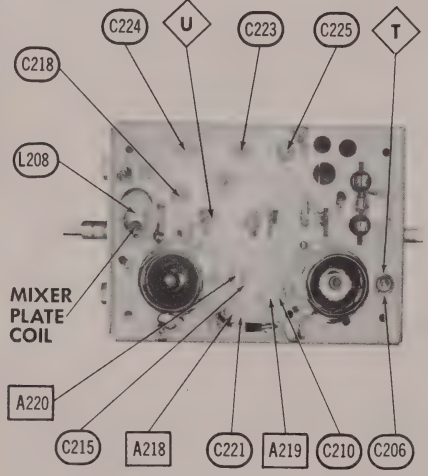
VHF TUNER WITH UHF PROVISIONS - WT86X85

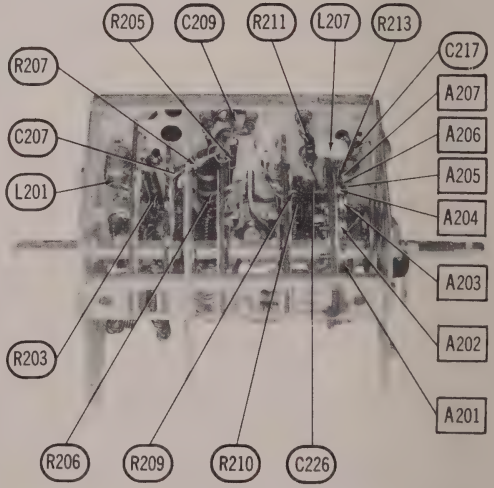
GENERAL ELECTRIC MODELS 21C367, 70, 71, 73, 75, 76, 80, 81, 85, 86, 21T359 & UHF (Ch. U4)



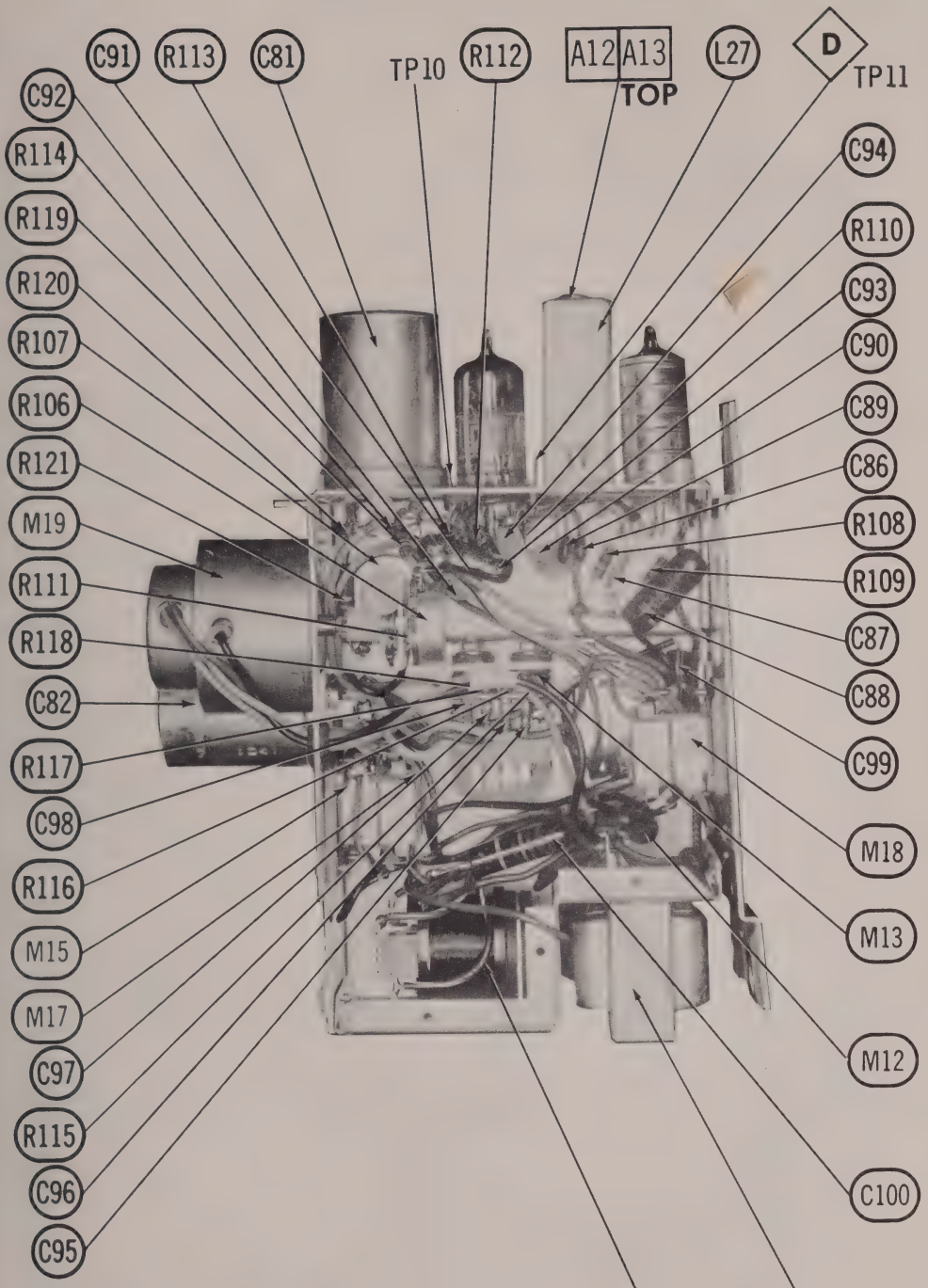
REMOTE CONTROL TRANSMITTER



TUNER WT86X84
TOP VIEW

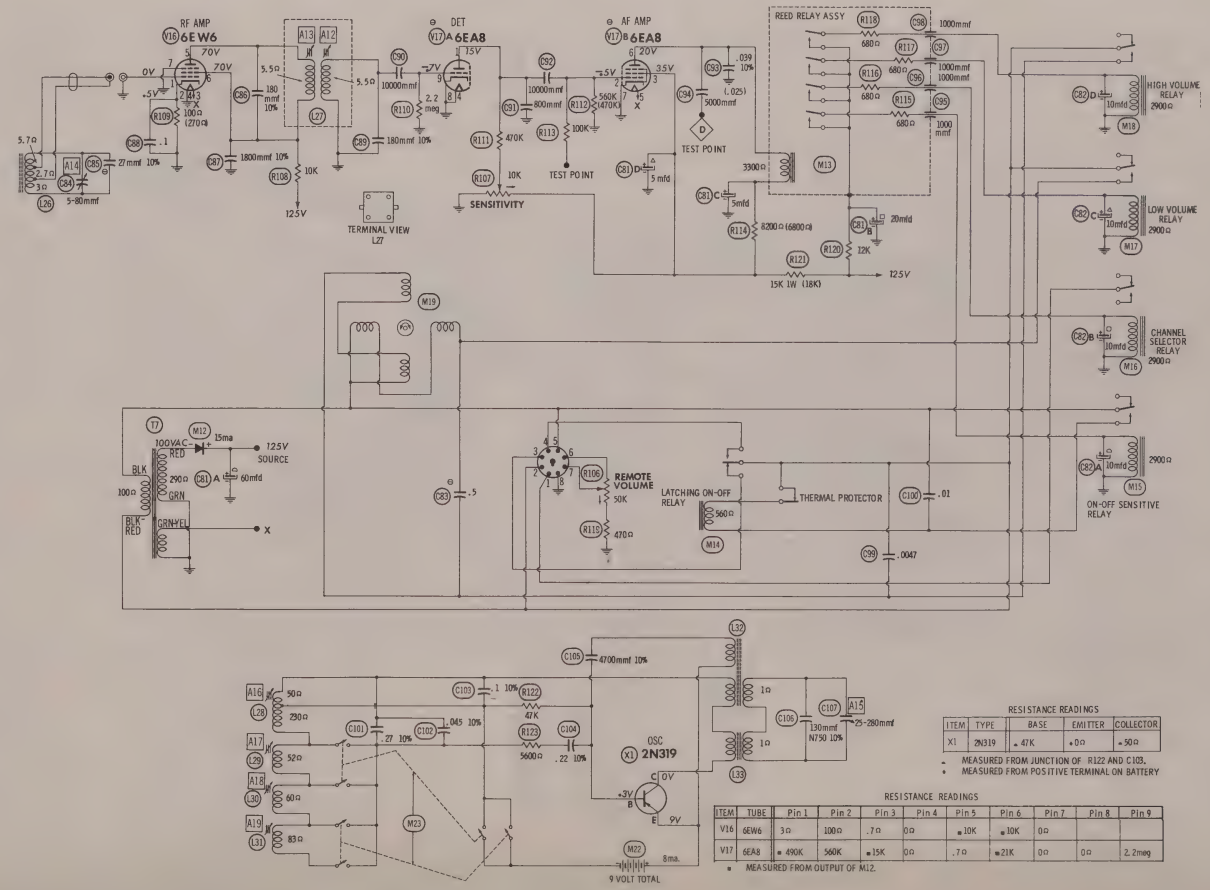


TUNER WT86X84
LEFT SIDE



TP10 0V AUDIO AMP GRID
TP11 0V AUDIO AMP PLATE CIRCUIT

REMOTE CONTROL RECEIVER



RESISTANCE READINGS

ITEM	TYPE	BASE	EMITTER	COLLECTOR
X1	2N319	▲ 47K	♦ 0Ω	▲ 50Ω

▲ MEASURED FROM JUNCTION OF R122 AND C103.
♦ MEASURED FROM POSITIVE TERMINAL ON BATTERY

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V16	6EW6	3Ω	100Ω	.7Ω	0Ω	▲10K	▲10K	0Ω		
V17	6EA8	▲ 490K	560K	▲15K	0Ω	.7Ω	▲21K	0Ω	0Ω	2.2meg

▲ MEASURED FROM OUTPUT OF M12.

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REMOTE CONTROL RECEIVER AND TRANSMITTER

ALIGNMENT & ADJUSTMENTS
(REMOTE CONTROL)

RECEIVER ALIGNMENT

Unplug the loop antenna from the RF input jack and insert a dummy antenna (Fig. 3).

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Loosely couple to dummy antenna (Fig. 3). (Low side not connected).	322.7KC (400∿ Mod.)		AC probe to point Ⓓ. Common to chassis.	A12, A13	Use only enough generator output to provide a usable indication. Adjust for maximum deflection.
2.	Remove dummy antenna and plug loop antenna in socket.	"		Reset range switch on VTVM to 15VAC scale. Attenuate generator for half scale deflection of meter.	A14	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

RECEIVER ANTENNA ADJUSTMENT

Connect the AC probe of the VTVM to point Ⓓ. Common to chassis. Tune the TV receiver for a normal picture. Turn the Horizontal hold of the TV off frequency. Switch VTVM to a scale where a reading is obtained. Readjust the Horizontal Hold of the TV receiver to obtain maximum reading on the meter. Carefully move the remote antenna up or down until MINIMUM reading is obtained on the VTVM. Adjust Sensitivity Control to obtain 3 volts RMS on VTVM. Adjust Horizontal Hold until picture synchronizes horizontally.

TRANSMITTER ALIGNMENT

Disconnect the receiver loop antenna and insert the dummy antenna (Fig. 3). Connect the AC probe of the VTVM to point Ⓓ. Common to chassis. Adjust the VTVM to the 1.5 or 3 volt scale. With one of the function buttons of the transmitter depressed, slowly move the transmitter toward the dummy antenna until half scale deflection on the VTVM is obtained. While holding the transmitter steady, adjust A15 for maximum deflection on the VTVM. (Attenuate as necessary by moving the transmitter away from the dummy antenna.) Remove the bottom cover from the transmitter. Connect a .002mfd capacitor across C101. Place the transmitter close to the receiver and depress each of the function buttons, starting with "Off-On" and ending with " + Volume". Should one or more of the functions fail to operate in sequence, the core of the coil involved should be adjusted until the proper function is actuated. Unplug the receiver antenna and insert the dummy antenna (Fig. 3). Connect the AC probe of the VTVM to point Ⓓ. Common to chassis. Set the VTVM to 1.5 or 3 volt AC scale.

With the "Off-On" function button depressed, move the transmitter close to the dummy antenna until half scale deflection is obtained. While holding the transmitter steady adjust A16 for MINIMUM deflection of the VTVM.

Depress "Channel Select" button and carefully adjust A17 for MINIMUM deflection on the VTVM.

Depress "Volume-" button and adjust A18 for MINIMUM deflection on VTVM.

Depress "Volume+" button and adjust A19 for MINIMUM deflection on the VTVM.

Remove the .002mfd capacitor from across C101. Disconnect the VTVM.

Restore both the receiver and transmitter to operating condition and from a distance check the operation of each of the four transmitter operations.

SHIFTING THE RF CARRIER FREQUENCY

The unit was factory aligned at 322.7KC; However, a usable RF bandspread of plus or minus 31.5KC is available for the system. This allows a total RF band of 63KC with a center frequency of 322.7KC.

If it is found that two systems are being used near enough to each other to cause interference, it is merely necessary to slightly shift the RF carrier frequency for one of the two systems. This is accomplished by selecting another frequency to be used in the RF alignment for both Receiver and Transmitter. The frequency chosen must fall within the allowable limits of plus or minus 31.5KC. It is advisable to shift the frequency to 291.2 or 354.2KC. This then separates the carrier frequency of both units by 31.5KC and at the same time, the frequency of the unit shifted, is placed half way between two harmonics of the undesired horizontal frequency.

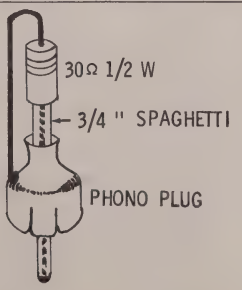


FIG. 3

TV
PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	1st Video IF Amp.	6BZ6	V8	Audio Output	6AQ5A
V2	2nd Video IF Amp.	6BZ6	V9	Sync Sep.	6BY6
V3	3rd Video IF Amp.	6EW6	V10	Vert. Osc. - Vert Output	6DN7
V4	Video Amp. -AGC Keying	6AW8A	V11	Horiz. Mult.	6CG7
V5	Video Output	6AQ5A	V12	Horiz. Output	6DQ6A
V6	Sound IF Amp.	6AU6A	V13	Damper	6AX4GTB
V7	Ratio Det. - AF Amp. - AGC Clamper	6T8A	V14	HV Rect.	1J3

PICTURE TUBE

ITEM No.	REPLACEMENT DATA					NOTES
	G E PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
V15	21ESP4	21ESP4 ①				① Aluminized

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	G E PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	150	165	WT31X130	AFH1-31-75	XA0262.1	FP117	TMS-34	TVL-1540	
C2	150	165	WT31X130	AFH1-31-75	XA0262.1	FP117	TMS-34	TVL-1540	
C3A	▲100	350	WT31X171		C0232	FP247	TMT-30	TVL-2639	
B	▲60	350				TC68		TVA-1611	
C	■40	350							
C4A	▲40	350	WT31X172	AFH4-53	D0460	FP413X	TMQ-29	TVL-4703.7	
B	▲40	25							
C	25	25							
D	■40	75							
C5	4	50	WT31X133	BCD50004	ECPB804	PET1935	TD-4-50	VL-1303	
C6	40	450	WT31X170	PRS1750	BR4045	TC78	TD-40-450	TVA-1712	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C8	20 NPO 5%			DTZ-20	C10Q2C	CCTO-200		10TCC-Q20
C9	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	10TS-T80
C10	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C11	680 10%		DI-680	DD-681	1R5T68	CCD-681	GP368	10TS-T68
C12	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C13	68 NPO 5%			DTZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
C14	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	10TS-T80
C15	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C16	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	10TS-T80
C17	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	10TS-T80
C18	51 NPO 5%			TCZ-51	C10Q51C	CCTO-510	CNO-450	10TCC-Q50
C19	1200		DI-1200	DD-122	L10D12	CCD-122	GP212	10TS-D12
C20	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	10TS-T80
C21	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	10TS-T80
C22	910 10%		DI-1000	DD-911	1R5T91	CM-19B-911K	GP250	10TS-D10
C23	3 NPO ±.25mmf		NPO-DI 3.0	DTZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C24	5 NPO 10%		NPO-DI 5.0	DTZ-10	C10V5C	CCTO-050	CNO-547	10TCC-V50
C25	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C26	800 10%		DI-820	DD-801	1R5T8	CCD-801	GP382	10TS-T80
C27	33 NPO 10%		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C28	20 NPO 5%			DTZ-20	C10Q2C	CCTO-200		10TS-Q20
C29	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C30	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C31	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C32	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C33	680 2000V		HVD-30-680	DD30-681	HVB20T68	3CCD-681	2HV-368	30GA-T68
C34	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P1
C35	.022 1000V		P1088N-022	DD-203	CUB10S22	16DP-4-223	GEM-10122	10TS-S22
C36	.0082 1600V 10%	#WT26X48				16DP-3-802	GEM-16282	
C37	10000		BPD-01	DD-103	BYA10S1	CCD-102	GP110	5HK-S10
C38	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C39	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	10TS-T80
C40	3300		BPD-0033	DD-332	BYA10D33	CCD-332	GP233	5HK-D33
C41	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C42	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C43	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C44	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	10TS-T80
C45	1000 10%		DI-1000	DD-102	1R5D1	CCD-102	GP210	10TS-D10
C46	1200		DI-1200	DD-122	L10D12	CCD-122	GP212	10TS-D12
C47	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C48	.0033 600V 10%		V84C6D33-10%		PM6D33	6DP-1-332	GEM-16233	6TM-D33
C49	.015 400V 10%		V84C4S15-10%		PM4S15	4DP-1-153		4TM-S15
C50	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C51	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C52	3300 1000V 10%		DI-3300			CCD-332	JL-233	10TS-D33
C53	.0033 1600V 10%					16DP-1-332	GEM-16233	
C54	.022 1000V	(.047mfd) †	P1088N-022	DD-203	CUB10S22	16DP-4-223	GEM-10122	10TM-S22
C55	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P1
C56	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C57	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C58	1200		DI-1200	DD-122	L10D12	CCD-122	GP212	10TS-D12
C59	.015 600V 10%		V84C6S15-10%		PM6S15	6DP-2-153		6TM-S15
C60	2000		BPD-002	DD-202	BYA10D2	CCD-202	GP220	5HK-D20
C61	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P1
C62	.033 400V 10%		V84C4S33-10%		PM4S33	4DP-2-333	GEM-1613	4TM-S33
C63	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C64	39 N750 10%			TCN-39	C10Q39U	CCTN-390	CN7-439	10TCU-Q39
C65	68 N750 10%		N750-DI 68	DTN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68
C66	1000 10%		DI-1000	DD-102	1R5D1	CCD-102	GP210	10TS-D10
C67	1000 10%		DI-1000	DD-102	1R5D1	CCD-102	GP210	10TS-D10
C68	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C69	.18 200V 10%					2DP-4-204	GEM-402	4TM-P2
C70	.0056 600V 10%					6DP-1-562	GEM-16256	10TS-D56
C71	820 5%		1469-00082		1R5T82	CM-19B-821J	MCE251	MS-382
C72	820 10%		DI-820	DD-821	1R5T82	CCD-821	GP382	10TS-T82
C73	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C74	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C75	280 4000V N1600 10%	#WT18X374				■		
C76	5000 1000V		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C77	.056 600V 10%		P684CM-057			6DP-3-563		
C78	1500 1400V		HVD-15-1500	DD30-152	HVB20D15	16DP-1-152	2HV-215	30GA-D15
C79	1500 1400V		HVD-15-1500	DD30-152	HVB20D15	16DP-1-152	2HV-215	30GA-D15
C80	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

† Alternate Value. # G. E. Part Number.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	G E PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg	1/2	WT49X287				PP26T16	Volume
	1meg Tap							
B	Shaft						DS-37	
C	Switch						Not Req.	Power Off-On
R2A	300K	1/2	WT49X289		A47-300K-S	B11-131		Vert. Hold
B	Shaft				RS-3/16	SK9		
R3A	400K	1/2	WT49X288	F1-40	RTV-698		■UE4110	Brightness
B	4500Ω	1/2		R2-18				Contrast
R4A	2meg	1/2	WT49X291			B17-139		Bass
B	Shaft					SK9		
R5A	150K	1/2	WT49X290			B13-328	U42	Treble
B	Shaft					SK9	DS-37	
R6	2000Ω	2(WW)	WT49X277		39-2000	112-2000	FL2K	Vert. Linearity
R7A	3meg	1/2	WT49X292	AB-84	B47-3meg-S	B11-140	U59	Height
B	Shaft			AK-1	Not Req.	TM4	Not Req.	
R8A	40K	1/2	WT49X293	AB-31	B47-50K-S	B11-123	U35	AGC
B	Shaft			AK-1	Not Req.	TM4	DS-37	
R9A	1meg	1/2	WT49X273	AB-69	B47-1meg-S	B11-137	PTA1254L	Horiz. Hold
B	Shaft			AK-19	Not Req.	TM4	Not Req.	

■ "STA-LOC" Equivalent: FB45L, RU452R, OS562A, IS1062.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R10	22Ω	
R11	5600Ω	
R12	220Ω	
R13	47Ω	
R14	1200Ω 1W	
R15	120K	
R16	220Ω	
R17	47Ω	
R18	120K	
R19	2200Ω	
R20	150Ω	
R21	4700Ω 1W	
R22	15K	
R23	5600Ω	
R24	3300Ω	
R25	1000Ω	
R26	4300Ω 3W	#WT14X131
R27	82Ω	
R28	5600Ω	
R29	470K	
R30	4100Ω 4W	#WT14X132
R31	180Ω	
R32	470Ω 1W	
R33	470K	
R34	270K	
R35	220K	
R36	120K	
R37	1meg	
R38	100K	
R39	68K	
R40	10K	
R41	4700Ω	

ITEM No.	RATING	REMARKS
R42	330Ω	
R43	68K	
R44	33K 1W	
R45	22K	
R46	22K	
R47	33Ω	
R48	56K	
R49	33Ω	
R50	120Ω	
R51	6.8meg	
R52	470K	
R53	1000Ω	
R54	470K	
R55	3300Ω 1W	
R56	3000Ω 1W	
R57	12K	(6800) *
R58	4.7meg	
R59	2.2meg	
R60	47K 1W	
R61	4700Ω	
R62	1.5meg	
R63	6.8meg	
R64	75K	
R65	180K	
R66	22K	
R67	1.5meg	
R68	2.2meg	
R69	56K	
R70	18K 1W	
R71	33K	
R72	33K	
R73	330K	

ITEM No.	RATING	REMARKS
R74	1.5meg	
R75	5600Ω	
R76	1.5meg	
R77	1000Ω 1W	
R78	10K	
R79	22K	
R80	1000Ω	
R81	1000Ω	
R82	1meg (Cold)	(600K) Hot
R83	560K	
R84	390K	
R85	1.5meg	
R86	82K	
R87	15K 1W	
R88	1meg	
R89	62K	
R90	43K	
R91	33K	
R92	910Ω	
R93	12K	
R94	820K	
R95	470Ω	
R96	100Ω	
R97	12K 2W	
R98	2200Ω	
R99	680Ω 2W	
R100	1500Ω	
R101	4700Ω 7W	#WT14X133
R102	470K	
R103	10K	
R104	10K 7W	#WT14X126 ①
R105	470K	

General Electric Part Number
① Not used in some versions.

* Alternate Value

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		G E PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	RF Choke	WT36X413	19-2001	19-2001		4580		.1uh
L2	47.25MC Trap	WT36X414						
L3	1st Video IF	WT36X378						

TV PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF) (cont)

ITEM No.	USE	REPLACEMENT DATA: G E PART No.	Gramer PART No.	Messner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L4A	3rd Video IF	WT81X101 ①						
B	41.25MC Trap	WT81X103 ②						
L2A	3rd Video IF							
B	47.25MC Trap	WT65X49 ③						
L6A	4th Video IF							
B	RF Choke	WT34X49	19-1000	19-1000	BC-561	4602		1.2uh
C	RF Choke	WT34X39	19-8003	19-8003		4684		.33uh
D	Series Peaking Coil		19-8033	19-8033				31uh
E	RF Choke	WT34X430	19-1006	19-1006	BC-566	4613		10uh
L7	RF Choke	WT34X344	19-1009	19-1009	BC-568	4611		7.5uh
L8	Shunt Peaking Coil	WT34X478	19-3300	19-3300	TV-196	6155		330uh
L9	Series Peaking Coil	WT34X387	19-1015	19-1015	TV-181	4631	VP-3	82uh
L10A	4.5MC Trap	WT34X393						
B	Sound Take off							
L11	Shunt Peaking Coil	WT34X410	19-3138	19-3138	TV-195	6153	VP-4	120uh
L13	Series Peaking Coil	WT34X41	19-4301	19-4301	TV-197	6154		220uh
L13	Cathode Choke	WT34X42	19-1005	19-1005	BC-565	4612		10uh
L14	Shunt Peaking Coil	WT34X411	19-4301	19-4301	TV-197	6154		220uh
L15	Series Peaking Coil	WT34X575	19-3300	19-3300	TV-196	6155		330uh
L16	RF Choke	WT34X40	19-1005	19-1005	BC-565	4612		10uh
L17	Ratio Det.	WT65X50 ④						
L18	Tone Choke	WT20X417 ⑤						370MH
L19	RF Choke	WT34X05	19-1005	19-1005	BC-565	4612		10uh
L20	RF Choke	WT34X206	19-1005	19-1005	BC-565	4612		10uh
L21	Sync Choke	WT34X406						100uh
L23	Line Choke	WT34X406						100uh

① Includes C13.
② Includes C14.
③ Includes C12, C23, C24 & M6.
④ Includes 120mmf capacitor & 120Ω resistor.
⑤ Alternate Part #WT36X48 (680MH).

TRANSFORMER (HORIZ. OSC.)

ITEM No.	USE	REPLACEMENT DATA: DC RES. PRI.	DC RES. SEC.	G E PART No.	Halldorson PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	NOTES
L22	Sync Stabilizer	880		WT36X415								Horiz. Stabilizer

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: G E PART No.	Halldorson PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L24	91uh Choke (.6MH tapped @ .3MH)	WT36X409								

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 (~)	REPLACEMENT DATA: G E PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L25	.250A	53Ω	1.4 Hy.	WT63X57	26C44			C-2343	26C44	C-32X

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA: G E PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 1.95A	120V @ 1A	24V @ 3.4A Tap @ 8.3V @ 8A	WT86X42						

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: G E PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Vert. Osc.	WT54X24	26A02 ①	A-3004 ①			A-8126 ①	26A02 ①	A-130Z ①
T3	Vert. Output	WT54X77							
T4	Yoke-Horiz. (12MH) (10^{5})-Vert. (39MH)	WT76X38	Y-81 ②					Y-91 ②	Y-70 & NW-1 D-164 *
T5	Horiz. Output	WT77X44							
	Alt. Horiz. Output	WT77X43							

① Send mounting tabs downward and solder to etched circuit board. Connect blue and green leads together. Connect yellow to junction of Resistor R72 and Capacitor C59. Connect green and blue leads to cathode. Connect red to ground.
② Use original vertical yoke damping resistance if necessary.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL (CONNECTION)	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
3		*					2
2		3					1
1		2					4
5		1					5
4		5					6
6		4					3

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: G E PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T6	7000Ω	3-4Ω	WT64X76	26S49 ①	A-3020 ①	AU-502 ①	A-2824	26S48 ①	S-9X	① Drill new mounting holes.

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP	REPLACEMENT DATA: G E PART No.	OHMS PART No.	NOTES
SP1	9" x 11"	PM	3-4Ω	WT95X25 ①	4AUR	① Used in Models 2CS570, 2CS571, 2CS573, 2CS580, 2CS581
SP2	2 1/4" x 10 1/2"	Electrostatic		WT95X26 ②		② One used in Models 2CS570, 2CS571, 2CS573, 2CS580, 2CS581; two used in Models 2CS575, 2CS576, 2CS585, 2CS586
	4"	PM	3-4Ω	WT95X24 ③		③ Model WT3550
	6"	PM	3-4Ω	WT95X34 ④		④ Model 2CS567
	9" x 11"	PM	8Ω	WT95X27 ⑤		⑤ Model 2CS575, 2CS576, 2CS585, 2CS586

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	G E PART No	REPLACEMENT DATA
K3	Sync Sep Grid	470mmf, 470K	WT24X3	Centralab BC-465 Sprague PRC-3

RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: G E	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.290A	WT57X22 ①	SD-500 ②	HA504 ②	40K ③	SR500 ③	① Germanium (Dual)
M2		WT87X7 ①	171 ③	KD85 ③			② Silicon (2 required)
							③ Dual Selenium Diode

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: G E PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M3	N	3/10A 250V 3/8 x 1 1/4	WT02X25	WT83X83	333.100 (N 3/10A 250V 5/20)	346008	HN/10	HNO to 3/10
M4	C	2A 125V	WT02X24	WT83XH	53200 (C 2A 250V)	346007	C8	HC2½ to 2½
M5		1½" length of #26 wire						

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: G E PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M8	1N87	WT16X3	1N295	1N295	1N295	Video Det.

MISCELLANEOUS

ITEM No.	PART NAME	G E PART No.	NOTES
MT	Tuner	WT86X84	VHF
	Tuner	WT86X85	VHF with UHF Provisions
	Tuner	WT86X35	UHF
M8	Switch	WT29X8	TV-Phono (3PDT Slide Type)
M9	Switch	WT29X5	Width (Rotary Wafer Type)
M10	Switch	WT29X7	Remote (3PDT Slide Type)
M11	Magnet	WT42X21	Focus

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	WT94X77	
Mask	WT94X23	Picture Tube
Knob	WT43X289	Channel Selector, VHF, Models 2CT3559, 2CS570, 2CS571, 2CS575, 2CS576
Knob	WT43X302	Channel Selector, VHF, Model 2CS567
Knob	WT42X289	Channel Selector, UHF
Knob	WT43X290	Fine Tuning, VHF, Models 2CT3559, 2CS570, 2CS571, 2CS575, 2CS576
Knob	WT43X304	Fine Tuning, VHF, Model 2CS567
Knob	WT43X286	UHF Indicator
Knob	WT43X305	Off-On, Volume, Vertical
Knob	WT43X287	Brightness
Knob	WT43X293	Contrast
Knob	WT43X309	Tone
Cabinet	WT103X284	Model 2CT3559 *
Cabinet	WT103X289	Models 2CS570, 2CS580
Cabinet	WT103X290	Models 2CS571, 2CS581
Cabinet	WT103X291	Models 2CS575, 2CS585
Cabinet	WT103X284	Models 2CS576, 2CS586
Cabinet	WT103X286	Model 2CS573
Cabinet	WT103X288	Model 2CS567 *

CABINETS & CABINET PARTS (cont)

NAME	PART NO.	DESCRIPTION
Cabinet Leg	WT78X37	Model 2CS567
Cabinet Leg	WT78X65	Model 2CS571, 2CS581
Cabinet Leg	WT78X84	Model 2CS570, 2CS585

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8886 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8674
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-In	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8486 (Round) - 5 Conductor 8488 (Round) - 6 Conductor

REMOTE CONTROL RECEIVER PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	CBS: USE	TYPE	ITEM No.	RAYTHEON: USE	TYPE
V18	RF Amplifier	6EW6	V17	Det. - AF Amp.	6EA8 ①

① Some versions may use 6GH8 in this application.

ELECTROLYTIC CAPACITORS

ITEM No	RATING: CAP	VOLT	REPLACEMENT DATA: G E PART No.	ASEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SYRAMID PART No.	SPRAGUE PART No.	NOTES
C81A	⌀50	150	WT31X74	AF84-05-20	DO695.3	FP430.32	TMQ-8	TVL8-4451.7 *	
B	⌀20	150							
C	5	50							
D	⌀5	50							
C82A	⌀10	150	WT31X75	AF84-08	DO830	FP434	TMQ-8	TVL-4512	
B	⌀40	150							
C	⌀20	150							
D	10	150							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: ASEROVOX	CENTRALAB	CORNELL-DUBILIER	ELMENCO	MALLORY PART No.	SPRAGUE PART No.
C83	.5 600V	#WT25X44 ①	JP30M		DYF5Q50		C3S504	BP-506
C84	5-80	#WT30X33				462		
C85	27 10%	③	1469-00037	TCS-27	22S2427	CM-19B-270K	MCS230	MS-427
C86	180 10%		1469-00018	TCS-180	22S1718	CM-19B-181K	MCS237	MS-318
C87	1000 10%		DI-1000	DD-183	1S1J4A	CCD-183	GP318	10Y5-183
C88	.1 200V		P28N-1	DF-104	CUE2P1	CCD-104	GEM-301	ETM-P1
C89	180 10%		1469-00018	TCS-180	22S1718	CM-19B-181K	MCS237	MS-318
C90	10000		BPD-01	DD-103	5T1A03E	CCD-103	GP310	5SE-S03
C91	800		BPD-0006	DD-801	L10T3	CCD-801	GP382	10Y5-T83
C92	10000		BPD-01	DD-103	5T1A03E	CCD-103	GP310	5SE-S03
C93	.039 600V 10%	(.02mfd) †	P864CM-039		P863DA	6DP-2-393		6TM-M4
C94	8000		BPD-008	DD-802	5T1A02E	CCD-802	GP380	5SE-L60
C95	1000		EF-001	MFT-1000		CCF-102	CT380A	
C96	1000		EF-001	MFT-1000		CCF-102	CT380A	
C97	1000		EF-001	MFT-1000		CCF-102	CT380A	
C98	1000		EF-001	MFT-1000		CCF-102	CT380A	
C99	.0047 600V		P868H-0047	DE-472	CUE6D47	6DP-1-472	GEM-8347	6TM-D47
C100	.01 600V		P868H-01	DE-103	CUE6S1	6DP-1-103	GEM-851	6TM-S1

General Electric Part Number. † Alternate Value.
① Some versions may use .5mfd non-polarized electrolytic in this application.
② 36mmf or 39mmf may be used with shunt capacitor (5, 7, 10 or 22mmf).

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: G E PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R106	50K	½	WT42X396					Remote Volume Sensitivity
R107	10K	½	WT42X395					

REMOTE CONTROL RECEIVER
PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R108	10K	
R109	100Ω	(270Ω) *
R110	2. 2meg	
R111	470K	
R112	560K	(470K) *

ITEM No.	RATING	REMARKS
R113	100K	
R114	8200Ω	(6800Ω) *
R115	680Ω	
R116	680Ω	
R117	680Ω	

ITEM No.	RATING	REMARKS
R118	680Ω	
R119	470Ω	
R120	12K	
R121	15K 1W	(18K) *

* Alternate Value

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		G E PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L26	Loopstick	WT51X15						
L27	IF Trans.	WT61X103						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	G E PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T7	117V @ . 2A	100V @ . 015A Tap @ 6.3V @ . 6A		WT88X40						

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					
	CURRENT (Measured)	G E PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M12	. 015A	WT57X23 *	2E4 ♦	HA154 ♦	K200 ♦	SR200 ♦	* Germanium ♦ Silicon

MISCELLANEOUS

ITEM No.	PART NAME	G E PART No.	NOTES
M13	Relay	WT62X20	Reed Assembly (Less Resistors & Capacitors)
M14	Relay	WT62X22	Latching, Off-On (Includes Thermal Protector)
M15	Relay	WT62X21	Sensitive (Off-On)
M16	Relay	WT62X21	Sensitive (Channel Selector)
M17	Relay	WT62X21	Sensitive (Volume)
M18	Relay	WT62X21	Sensitive (Volume)
M19	Motor	WT72X4	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	WT43X306	Selector
Knob	WT43X305	VHF Channel Indicator
Pushbutton	WT47X38	

POWER TUNING UNIT

MISCELLANEOUS

ITEM No.	PART NAME	G E PART No.	NOTES
M20	Switch	WT41X13	
M21	Motor	WT72X5	Includes Gear Drive

REMOTE CONTROL TRANSMITTER PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N319	Oscillator					PNP

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C101	.27 200V 10%		V84C2P25-10%		PM6D3	2DP-4-254		2WF-P27
C102	.045 500V 10%				PM6S47	6DP-3-473		5BF-S47
C103	.1 200V 10%		V84C2P1-10%		PM2P1	2DP-3-104	GEM-201	2TM-P1
C104	.22 200V 10%		V84C2P22-10%		PM2P22	2DP-4-224	GEM-2022	2TM-P22
C105	4700		DI-4700		LR5D47	CCD-472	JL-247	10TS-D47
C106	130 N750 10%				C10T13U	CCTN-121		10TCU-T12
C107	25-280	#WT30X51				464		

General Electric Part Number

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R122	47K	

ITEM No.	RATING	REMARKS
R123	5600Ω	

ITEM No.	RATING	REMARKS

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		G E PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L28	405CPS Osc. Coil	WT35X42						
L29	375CPS Osc. Coil	WT35X43						
L30	345CPS Osc. Coil	WT35X44						
L31	315CPS Osc. Coil	WT35X45						
L32	Transmitting Ant.	WT83X21						
L33	Transmitting Ant.	WT83X22						

BATTERIES

ITEM No.	VOLTAGE	G E PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M22	9V	WT58X1		2U6		216		M-1604	

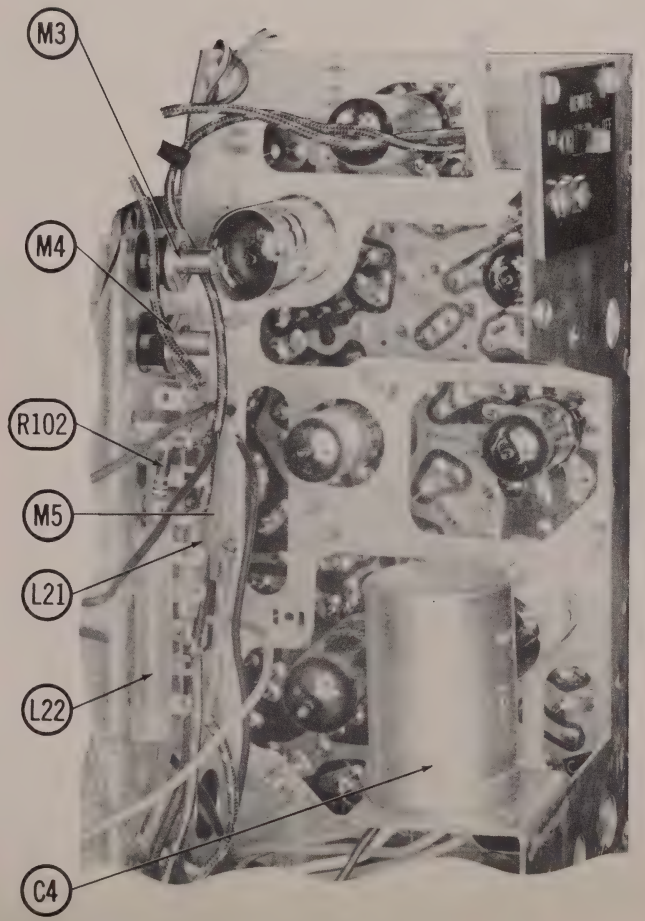
MISCELLANEOUS

ITEM No.	PART NAME	G E PART No.	NOTES
M23	Switch	WT55X25	Wafer & Contrast Assembly

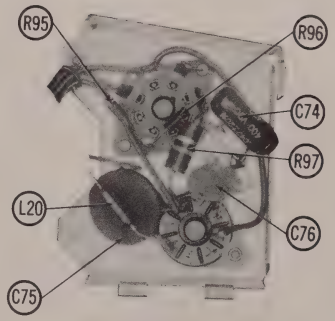
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Pushbutton Cabinet	WT47X37 WT89X130	

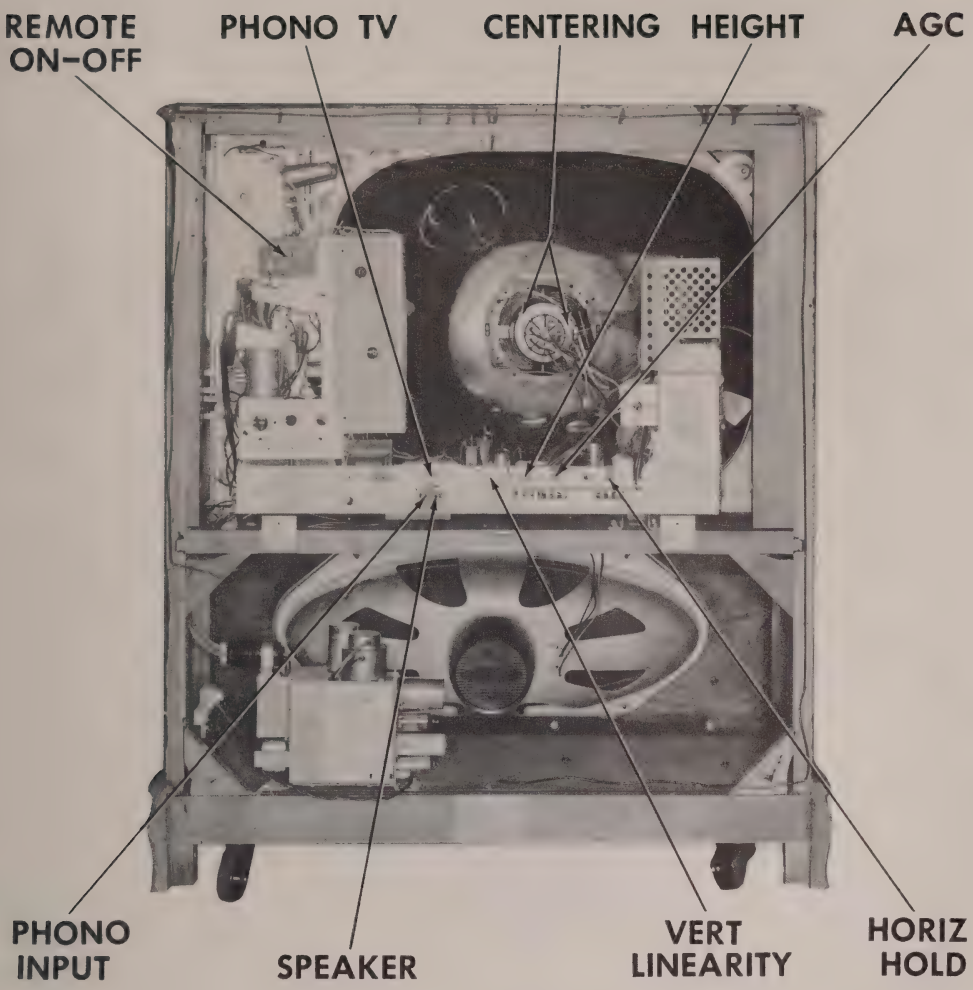


VIDEO, SOUND PRINTED BOARD



SWEEP SUBCHASSIS

CONTROL PANEL



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Tune the receiver to a weak signal and adjust the controls for a normal picture.

Connect a short clip lead from TP-7 to chassis. Connect a 1000 ohm resistor from TP-8 to point E .

Adjust the Horizontal Hold control to the point where the picture appears to float back and forth across the screen.

Remove the 1000 ohm resistor and adjust the Horizontal Frequency slug (B1) until the picture again appears to float back and forth across the screen. Remove the clip lead from TP-7 and chassis.

TUNER PARTS LIST AND DESCRIPTIONS

WT86X84

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6ES8	V202	Mixer-Osc.	6EA8

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	6.8 NPO 5%		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C202	25 N750 5%		N750-DI 25	DTN-25	C10Q25U		CN7-425	10TCU-Q25
C203	2.5 5%	#WT21X41						10TCC-V27
C204	1.2 5%	#WT21X22						10TCC-V12
C205	12 N750 5%			TCN-12	C10Q1U		CN7-412	10TCU-Q12
C206	1000		EF-001	MFT-1000		CCF-102	CT280A	
C207	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C208	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C209	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C210	.5-2			829-3		CV-1	CT565	
C211	33 N1500 5%	#WT18X293		TCL-33		*		
C212	1.2 5%	#WT21X22						10TCC-V12
C213	1.2 5%	#WT21X22						10TCC-V12
C214	2.2 5%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C215	.5-2			829-3		CV-1	CT565	
C216	22 N470 5%	#WT18X402				*		
C217	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	10TS-T8
C218	1000		EF-001	MFT-1000		CCF-102	CT280A	
C219	5 N2200 5%	#WT18X362				*		
C220	10 N80 5%	#WT18X360				*		
C221	.3-2			829-3		CV-1	CT565	
C222	1.2 5%	#WT21X22						10TCC-V12
C223	1000		EF-001	MFT-1000		CCF-102	CT280A	
C224	1000		EF-001	MFT-1000		CCF-102	CT280A	
C225	1000		EF-001	MFT-1000		CCF-102	CT280A	
C226	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C227	1000		EF-001	MFT-1000		CCF-102	CT280A	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
\# G E Part No.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R201	4700Ω	
R202	8200Ω 5%	
R203	100Ω	
R204	82K 5%	
R205	82K 5%	

ITEM No.	RATING	REMARKS
R206	3600Ω 2W	
R207	150K	
R208	22K	
R209	150K	
R210	3900Ω	

ITEM No.	RATING	REMARKS
R211	10K	
R212	330Ω	
R213	6800Ω	
R214	10K	

COILS (RF-IF)

ITEM No.	USE	G E PART No.	NOTES
L201	Ant. Trans.	WT37X28	
L202	Ant. Coils	WT52X148	Channel 2-13, Includes Wafer Assy.
L203	RF Coils	WT52X147	Channel 2-13, Includes Wafer Assy.
L204	RF Coils	WT52X146	Channel 2-13, Includes Wafer Assy.

ITEM No.	USE	G E PART No.	NOTES
L205	Mixer Grid Coils	WT52X133	Channel 2-13, Includes Wafer Assy.
L206	Osc. Coils	WT52X132	Channel 2-13, Includes Wafer Assy.
L207	RF Choke	WT36X418	
L208	Mixer Plate Coil	WT36X307	

MISCELLANEOUS

ITEM No.	PART NAME	G. E. PART No.	NOTES
M201	Capacitor Plate Switch Shaft	WT2X101 WT69X202	Stator Assembly

VHF TUNER WT86X84 – RIGHT SIDE

TUNER ALIGNMENT INSTRUCTIONS
WT86X84, WT86X85, WT85X25

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested alignment tools: A201 thru A212 ..... General Cement #5097, 8727
Walsco #2515
A213, A214, A215, A216 ..... General Cement #8607, 9291
Walsco #2520, 2522, 2523, 2524, 2537

VHF OSCILLATOR ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Set Contrast two-thirds from full counterclockwise rotation.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Fig. 201	Across antenna terminals thru matching network (Fig. 201).	213MC	211.25MC	13	Vert. Amp. thru 47K across Video Det. load.	A201	Adjust to place video marker at 45% as in Fig. 202.
			207MC	205.25MC	12		A202	
			201MC	199.25MC	11		A203	
			195MC	193.25MC	10		A204	
			189MC	187.25MC	9		A205	
			183MC	181.25MC	8		A206	
			177MC	175.25MC	7		A207	
			85MC	83.25MC	6		A208	
			79MC	77.25MC	5		A209	
			69MC	67.25MC	4		A210	
			63MC	61.25MC	3		A211	
			57MC	55.25MC	2		A212	

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point ⓣ . Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

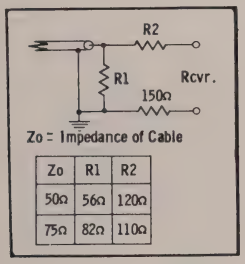
	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2.	Fig. 201	Across antenna terminals thru matching network (Fig. 201).	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point ⓣ . Low side to chassis.	A213, A214, A215, A216, A217, A218	Adjust for maximum gain and symmetry of response similar to Fig. 203 with markers as shown. A217 adjusts bandwidth, A218 controls tilt.
3.	"	"	177MC	175.25MC 179.75MC	7	"	A219, A220	Adjust for maximum gain and symmetry of response similar to Fig. 203 with markers as shown. Retouch A213 for maximum gain and equal peaks.
4.	"	"	207MC	205.25MC 209.75MC	12	"		Make compromise adjustments of A213 thru A217 and/or A219 and A220, if necessary. Replace tuner shield when checking response
			201MC	199.25MC 203.75MC	11			
			195MC	193.25MC 197.75MC	10			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
5.	"	"	85MC	83.25MC 87.75MC	6	"	A221, A222, A223, A224	Adjust for maximum gain and symmetry of response similar to Fig. 204 with markers as shown. Adjust bandwidth by positioning "Gimmick".
6.	"	"	79MC	77.25MC 81.75MC	5	"	A225, A226, A227, A228	Adjust for maximum gain and symmetry of response similar to Fig. 204. with markers as shown.
7.	"	"	69MC	67.25MC 71.75MC	4	"	A229, A230, A231, A232	"
8.	"	"	63MC	61.25MC 65.75MC	3	"	A233, A234, A235, A236	"
9.	"	"	57MC	55.25MC 59.75MC	2	"	A237, A238, A239, A240	"

TUNER ALIGNMENT INSTRUCTIONS (cont)

UHF IF ALIGNMENT

Connect bias as under "VHF RF and Mixer Alignment".
Disconnect IF Output and terminate with a 68Ω resistor at the open end.
Remove UHF Mixer Crystal.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Direct	High side to point Ⓥ. Low side to chassis.	43.5MC (10MC Swp)	40.5MC 45.75MC	UHF Tune UHF for MINIMUM tilt over center tuning area	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A241, A242, A243, A244	Adjust A241 for correct placement of 40.5 MC marker. (See Fig. 205). Adjust A242 and A243 for maximum gain and symmetry. Adjust A244 for maximum gain and zero tilt.



Zo	R1	R2
50Ω	56Ω	120Ω
75Ω	82Ω	110Ω

FIG. 201

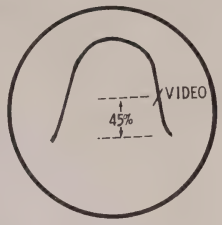


FIG. 202

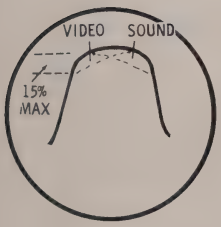


FIG. 203

FIG. 204

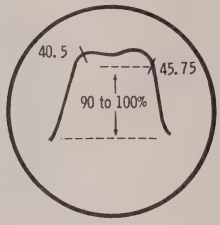
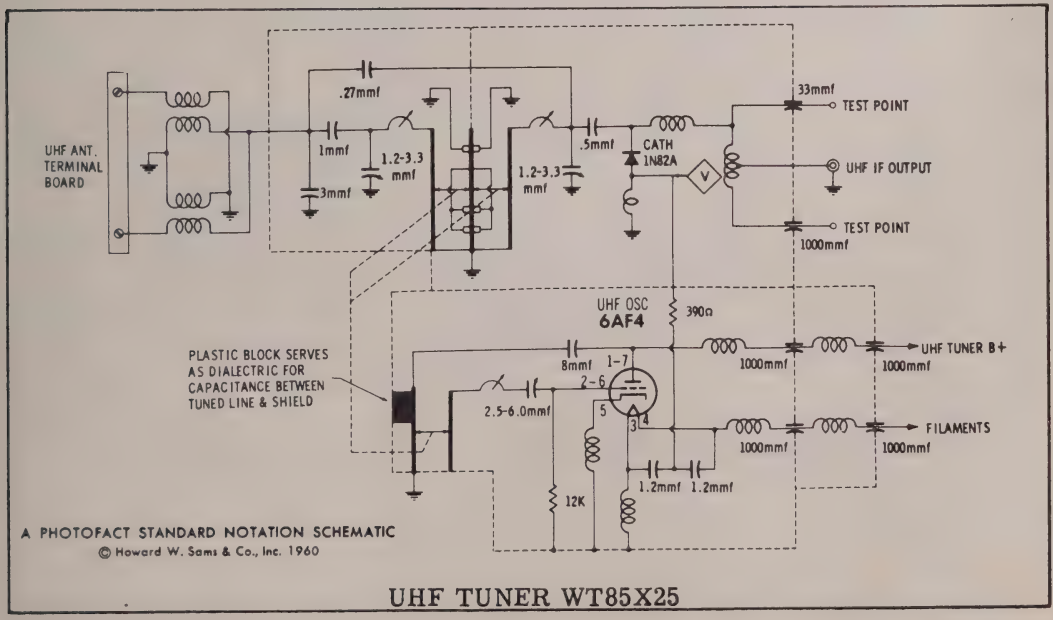
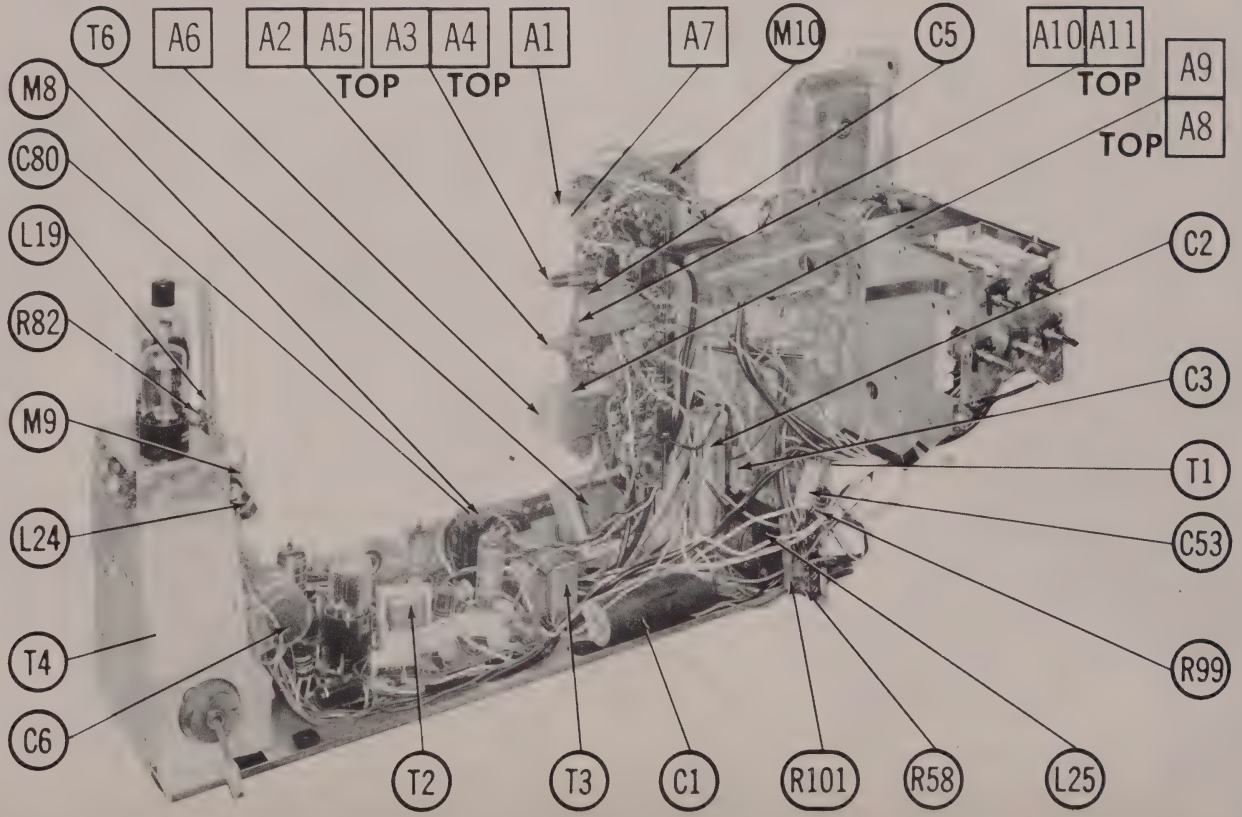


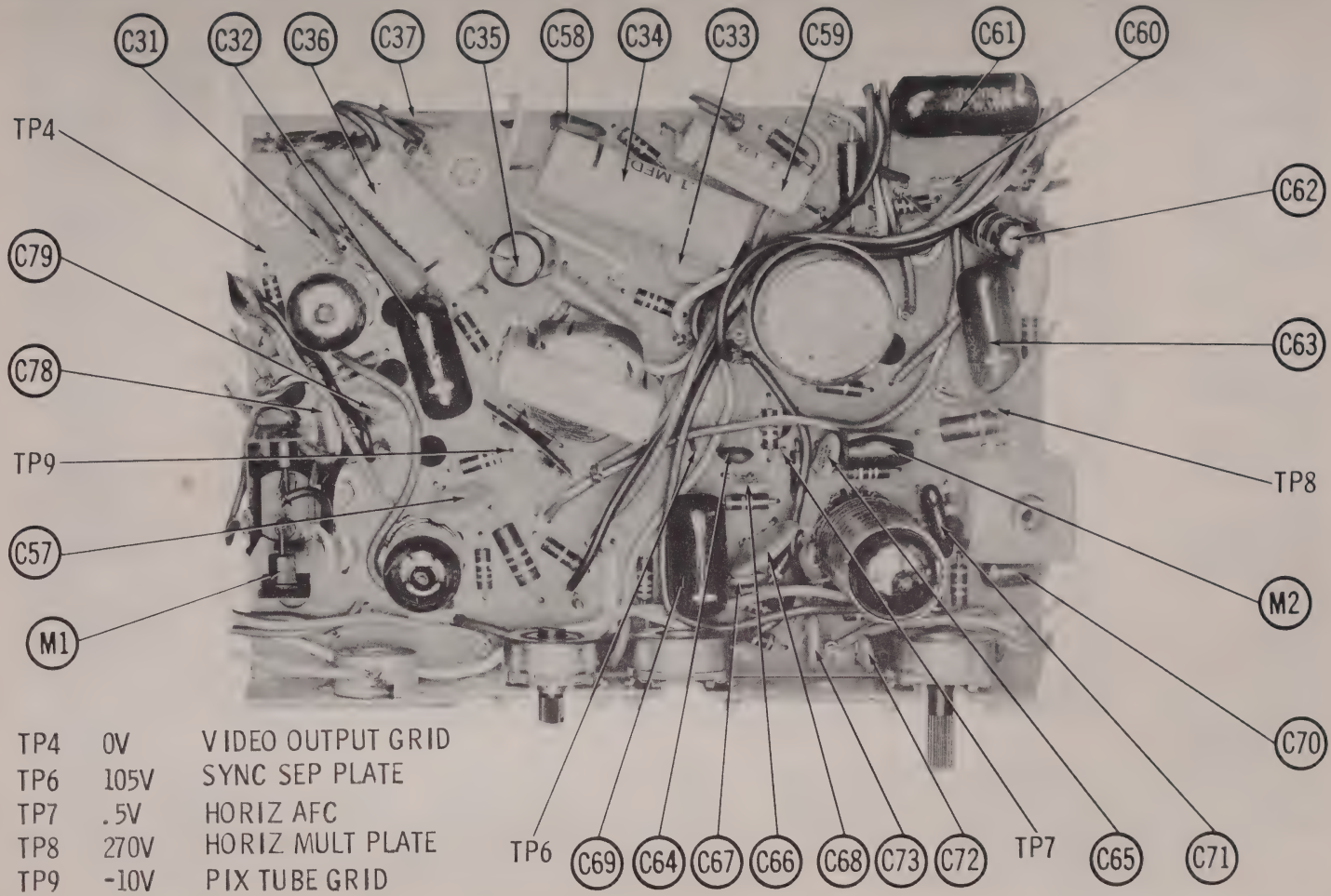
FIG. 205



UHF TUNER WT85X25

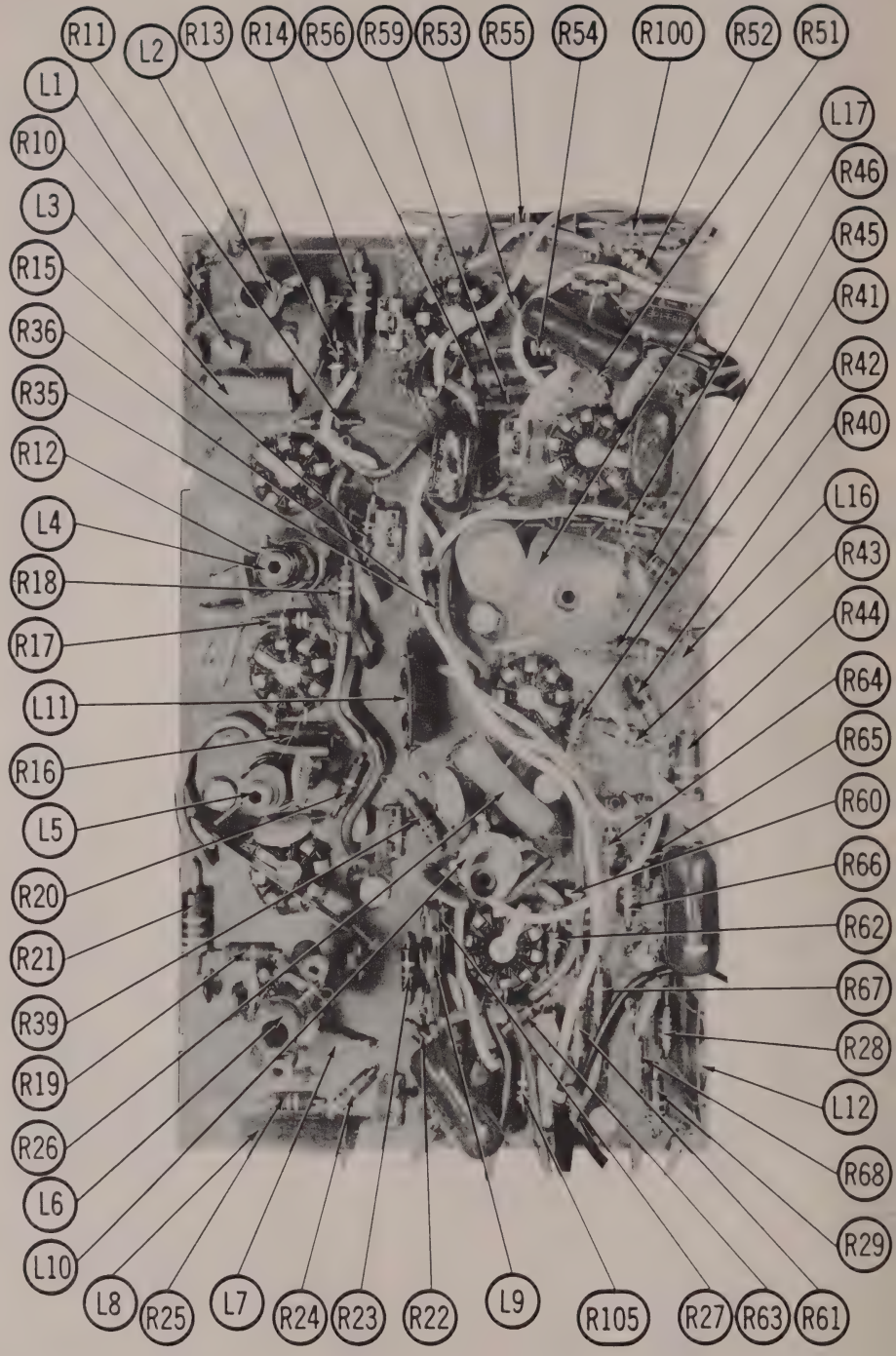


CHASSIS - FRONT VIEW

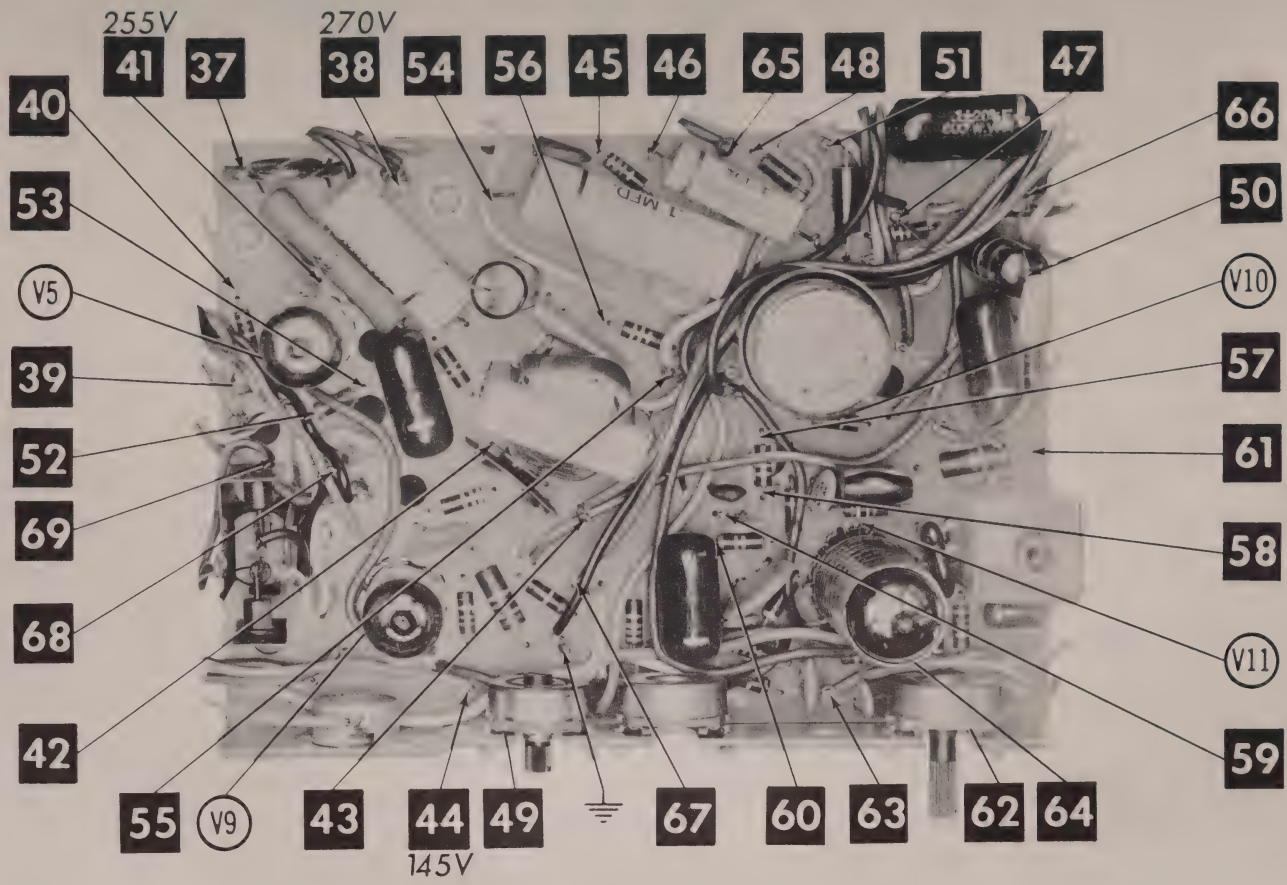


TP4	0V	VIDEO OUTPUT GRID
TP6	105V	SYNC SEP PLATE
TP7	.5V	HORIZ AFC
TP8	270V	HORIZ MULT PLATE
TP9	-10V	PIX TUBE GRID

VIDEO OUTPUT, SYNC, SWEEP PRINTED BOARD – CAPACITOR AND MISC. IDENT.



VIDEO, SOUND PRINTED BOARD — RESISTOR AND INDUCTOR IDENT.



A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VIDEO OUTPUT, SYNC, SWEEP PRINTED BOARD

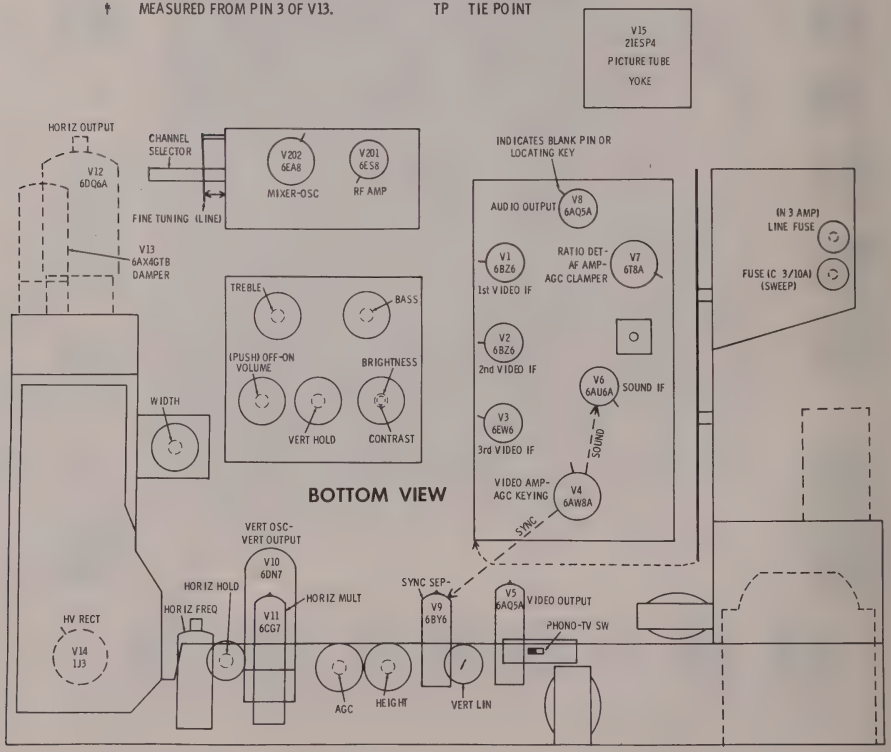
GENERAL ELECTRIC MODELS 21C3567, 70, 71, 73, 75, 76, 80, 81, 85, 86, 21T3559 & UHF (Ch. U4)

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	2meg	1200Ω	.6Ω	0Ω	▲ 220Ω	▲ 220Ω	0Ω		
V2	6BZ6	60K	▲ 47Ω	.6Ω	0Ω	† 220Ω	† 220Ω	INF		
V3	6EW6	.3Ω	150Ω	.6Ω	0Ω	† 6900Ω	† 6900Ω	0Ω		
V4	6AW8A	● 15K	4500Ω	1.3meg	.6Ω	0Ω	82Ω	3300Ω	† 4700Ω	† 4300Ω
V5	6AQ5A	470K	■ 2100Ω	.6Ω	0Ω	† 4100Ω	† 730Ω	470K		
V6	6AU6A	68K	0Ω	.6Ω	0Ω	† 15K	† 15K	330Ω		
V7	6T8A	INF	22K	INF	.6Ω	0Ω	4.2meg	0Ω	6.8meg	† 470K
V8	6AQ5A	470K	300Ω	.6Ω	0Ω	† 900Ω	† 2200Ω	470K		
V9	6BY6	1.8meg	0Ω	.6Ω	0Ω	† 35K	† 23K	2.2meg		
V10	6DN7	1.5meg	+ 2480Ω	● 2000Ω	●550K	●+ 3.8meg	120Ω	.6Ω	0Ω	
V11	6CG7	† 15K	2.4meg	910Ω	0Ω	.6Ω	† 76K	60K	910Ω	0Ω
V12	6DQ6A	TP	0Ω	NC	† 12K	820K	TP	.6Ω	0Ω	TOP CAP + 24Ω
V13	6AX4GTB	NC	NC	¶ INF	NC	† 0Ω	NC	0Ω	.6Ω	
V14	1J3	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP 370Ω
V15	21ESP4	.6Ω	NC	† 100K	1meg	TP	470K	● 730K	0Ω	
V201	6ES8	† 3600Ω	45K	† 45K	0Ω	.6Ω	† 45K	4.2meg	100Ω	0Ω
V202	6EA8	† 11K	150K	† 15K	0Ω	.6Ω	† 4700Ω	0Ω	0Ω	10K

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
▲ MEASURED FROM PIN 7 OF V2.
† MEASURED FROM 270V SOURCE.
‡ MEASURED FROM PIN 3 OF V13.

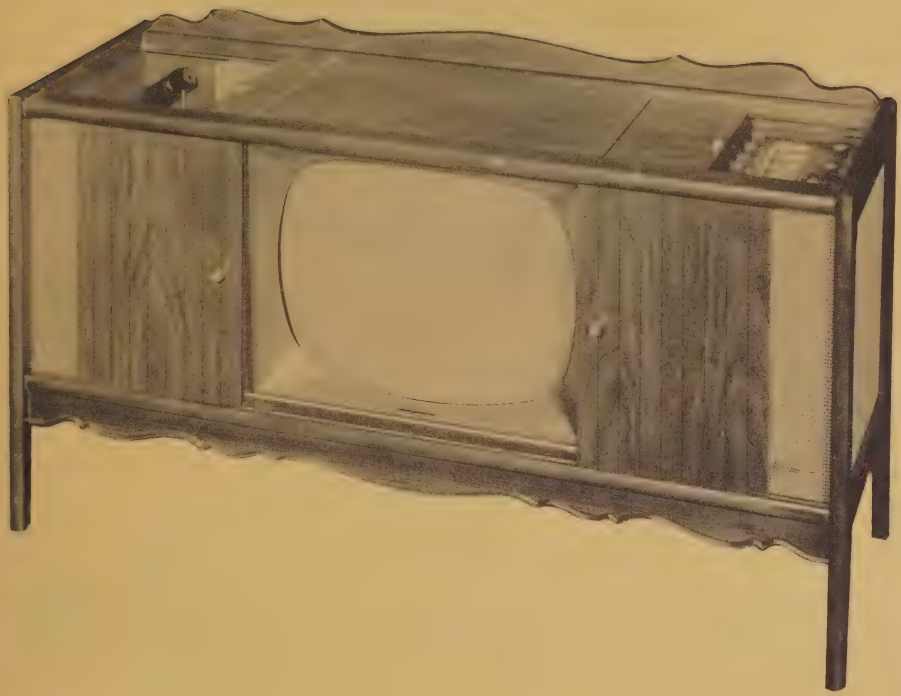
NC NO CONNECTION
TP TIE POINT



PHOTOFACT® Folder with CIRCUITRACE®

MAGNAVOX CHASSIS U29-01-11, -02-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -11-11, 12-11, V29-01-11, -02-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -09-11, -11-11, -12-11, -13-11

MAGNAVOX CHASSIS U29-01-11, -02-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -11-11, 12-11, V29-01-11, -02-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -09-11, -11-11, -12-11, -13-11



REPRESENTATIVE MODEL USING TV CHASSIS V29-12-11

MAGNAVOX CHASSIS U29-01-11, -02-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -11-11, 12-11, V29-01-11, -02-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -09-11, -11-11, -12-11, -13-11

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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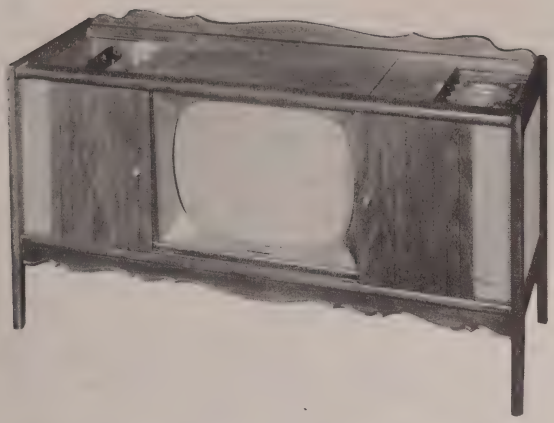
SET 483 FOLDER 2

PHOTOFACT® Folder with CIRCUITRACE®

MAGNAVOX CHASSIS U29-01-11, -02-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -11-11, 12-11, V29-01-11, -02-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -09-11, -11-11, -12-11, -13-11

MAGNAVOX CHASSIS U29-01-11, -02-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -11-11, 12-11, V29-01-11, -02-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -09-11, -11-11, -12-11, -13-11



REPRESENTATIVE MODEL USING TV CHASSIS V29-12-11

TRADE NAME	Magnavox	Chassis U29-01-11, U29-02-11, U29-03-11, U29-04-11, U29-05-11, U29-06-11, U29-07-11, U29-08-11, U29-11-11, U29-12-11, V29-01-11, V29-02-11, V29-03-11, V29-04-11, V29-05-11, V29-06-11, V29-07-11, V29-08-11, V29-09-11, V29-11-11, V29-12-11, V29-13-11
MANUFACTURER	Magnavox Co., 2131 Bueter Road, Fort Wayne 4, Indiana	
TYPE SET	Television Receiver (Some Models With FM AM Tuner Chassis 59-06-00, Stereo Amp. Chassis AMP-196-00 or AMP-197-10, Remote Control Chassis 700800-2, 700813-1, or 700782-2)	
TUBES	TV: VHF - Nineteen, UHF - Twenty	
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING TV: 190 Watts, 1.7 Amp. @ 117 Volts AC
TUNING RANGE	TV: Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)	

FOR SERVICE INFORMATION ON FM-AM TUNER, STEREO AMP. CHASSIS, REMOTE CONTROL CHASSIS, RECORD CHANGER, & ADDITIONAL VHF & UHF TUNERS, SEE SIMILAR OR IDENTICAL UNITS LISTED IN PHOTOFACTS BELOW:

SET 454 FOLDER 1

FM-AM Tuner Ch. 59-06-00
Stereo Amp. Ch. AMP-196-00
Remote Control Ch. 700800-2
700813-1
700782-2

VHF Tuner #700662-1, #700662-2, #700692-1 (Elec. Ident.)
#700731-1
#700732-1
UHF Tuner #700688-1

SET 479 FOLDER 12

Stereo Amp. Ch. AMP-197-10

SET 408 FOLDER 6

Record Changer #523050 (F200C)

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 4 screws holding the trim strip at the top edge of the safety glass. Tilt glass out and remove.

FUSE

A fuse is used for horizontal sweep circuit protection. For location, see "Tube Placement Chart".
A fuse wire is used for filament protection. (For location, see M3 in photo "Chassis Bottom View".)

TUNER OSCILLATOR ADJUSTMENTS

To touch-up the VHF Oscillator, remove Channel Selector and Fine Tuning knobs.

AGC

No provision is made to vary the AGC on this receiver.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency Slug. (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by a Width coil. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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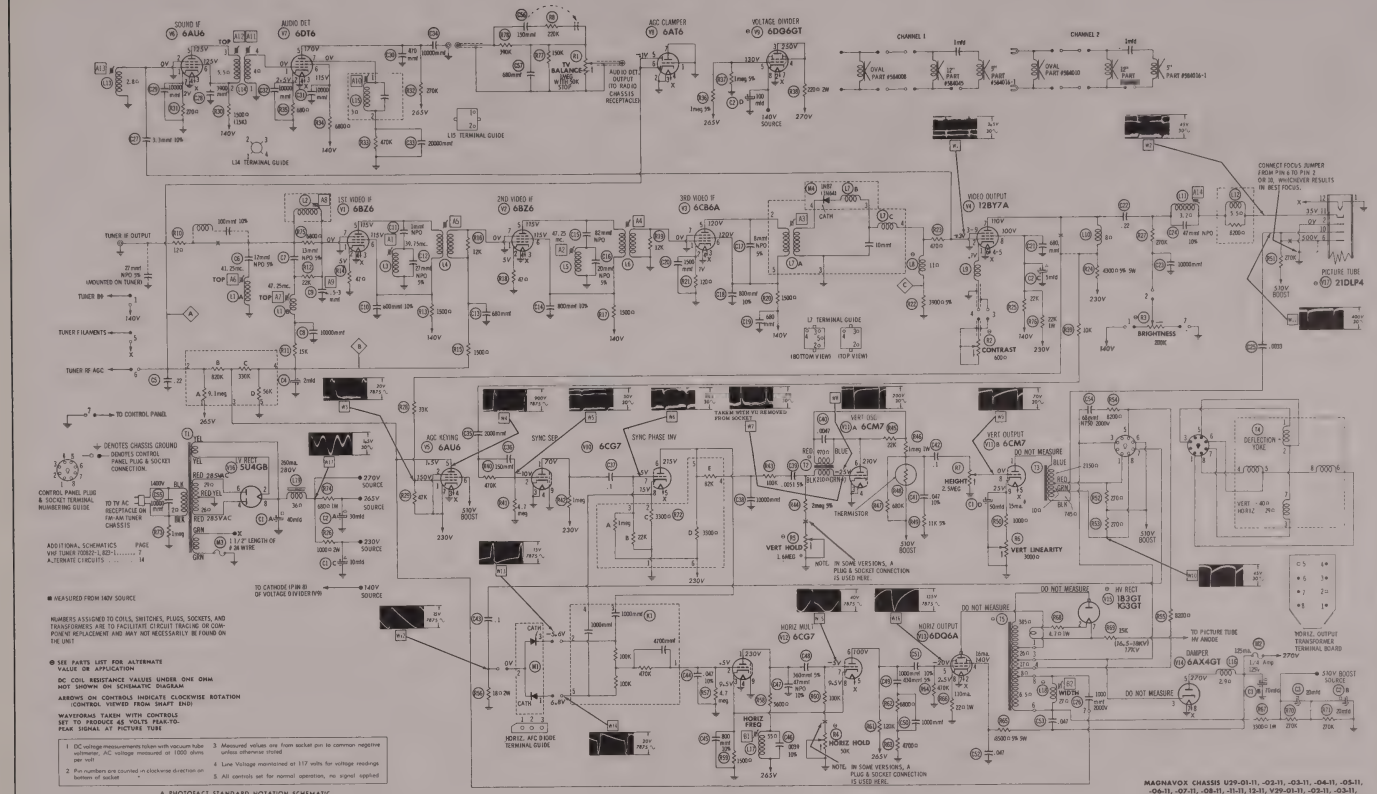
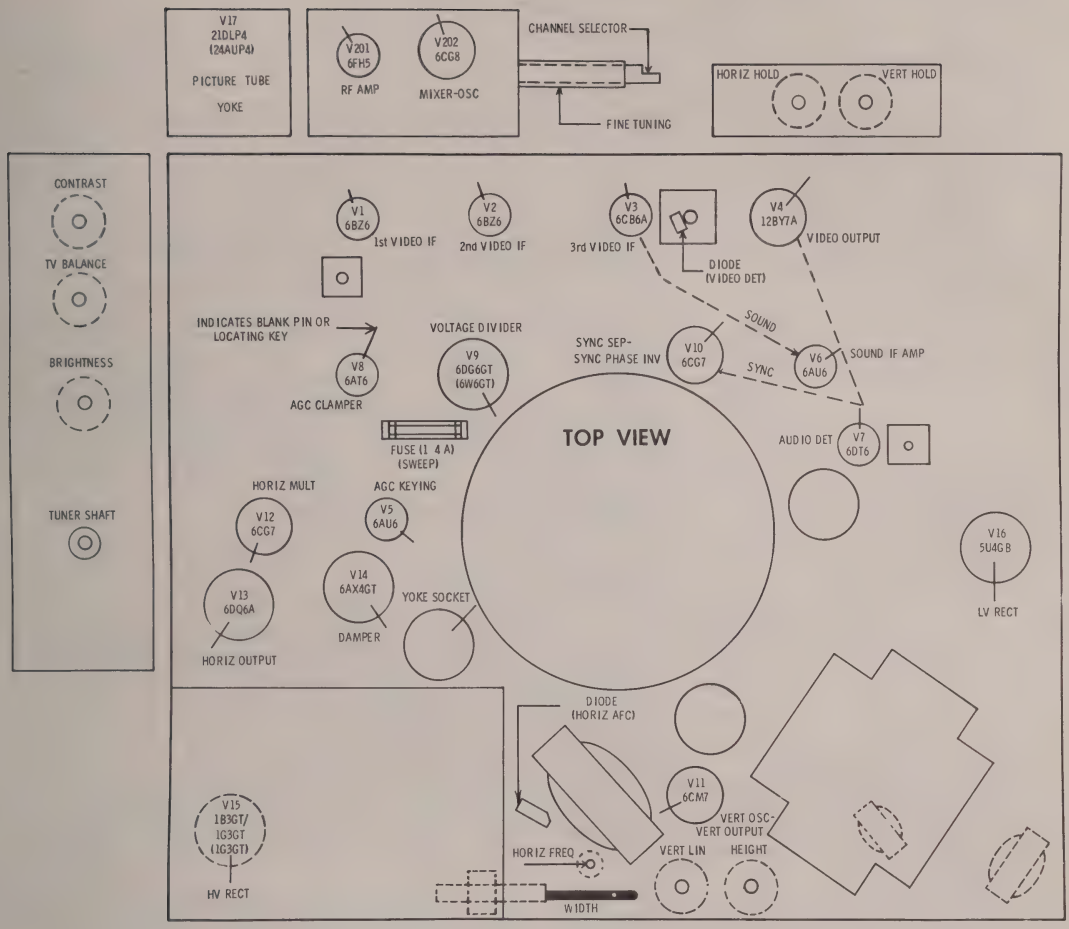
JC910

SET 483 FOLDER 2


SOUND IF
6AU6
AUDIO DET
6DT6
AGC CLAMPER
6AT6
VOLTAGE DIVIDER
6DQ6GT
CHANNEL 1
CHANNEL 2
TUNER IF OUTPUT
TUNER B9
TUNER FILAMENTS
TUNER RF AGC
1ST VIDEO IF
6BZ6
2ND VIDEO IF
6BZ6
3RD VIDEO IF
6CB6A
VIDEO OUTPUT
12BY7A
CONTRAST
BRIGHTNESS
PICTURE TUBE
21DLP4
CONNECT FOCUS JUMPER FROM PIN 6 TO PIN 2 OR 3R WHICHEVER RESULTS IN BEST FOCUS.
TO CONTROL PANEL
AGC KEYING
6AU6
SYNC SEP.
SYNC PHASE INV
6CG7
VERT OSC
6CM7
VERT OUTPUT
6CM7
HEIGHT
VERT LINEARITY
DEFLECTION YOKE
HORIZ MULT
6CG7
HORIZ OUTPUT
6DQ6A
HV RECT
1B3GT
1G3GT
DAMPER
6AX4GT
WIDTH
HORIZ FREQ
HORIZ HOLD
VERT HOLD
THERMISTOR
TO PICTURE TUBE HV ANODE
HORIZ. OUTPUT TRANSFORMER TERMINAL BOARD
DO NOT MEASURE
TAKEN WHEN YOU REMOVED FROM SOCKET
NOTE: IN SOME VERSIONS, A PLUG & SOCKET CONNECTION IS USED HERE.
CONTROL PANEL PLUG & SOCKET NUMBERING GUIDE
TO TV AC RECEPTACLE ON FM-AM TUNER CHASSIS
LV RECT
5U4GB
TO CATHODE (PIN 8) OF VOLTAGE DIVIDER
ADDITIONAL SCHEMATICS ..... PAGE
VHF TUNER (V2021-1, 822) 7
ALTERNATE CIRCUITS 14
MEASURED FROM 140V SOURCE
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 45 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1 DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt
2 Pin numbers are counted in clockwise direction on bottom of socket
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1960
MAGNAVOX CHASSIS U29-01-11, -02-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -11-11, 12-11, V29-01-11, -03-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -09-11, -11-11, -12-11, -13-11

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse wire (Filament), V16

SWEEP FAILURE
No raster, has sound V12, V13, V14, V15, Fuse (Sweep), V17
No vertical deflection V11
Poor vert. linearity or foldover V11
Poor horiz. linearity or foldover V12, V13, V14
Narrow picture V12, V13, V14, V16
Vert. off freq. V11
Horiz. off freq. Diode (Horiz. AFC), V12

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V17
Has pic, no sound V6, V7
Overloaded picture V5

SYNC FAILURE
No vert. sync V10
No horiz. sync V10, Diode (Horiz. AFC)
No vert. or horiz. sync V10

MAGNAVOX CHASSIS U29-01-11, -02-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -11-11, 12-11, V29-01-11, -02-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -09-11, -11-11, -12-11, -13-11

FOLDER 2

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A1, A2, A4 thru A8 .... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A3, A10 thru A14 ..... GENERAL CEMENT #8721, 8722
WALSCO #2519

VIDEO IF ALIGNMENT

Connect the negative lead of a 1.5 volts bias supply to point (A). Positive to chassis.
Connect the negative lead of a 3 volt bias supply to point (B). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Preset Mixer Plate Coil by turning core fully counterclockwise.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .01mfd to pin 1 (grid) of 1st Video IF Amp. Low side to chassis.	44MC (10MC Swp)	39.75MC	Any non-interfering channel	Vert. Amp. thru 10K to point (C). Low side to chassis. (Across Video Det. load)	A1	Adjust to place marker in trap notch as in Fig. 1.
2.	"	"	47.25MC	"	"	A2	"
3.	"	"	42.25MC 45.0MC 45.75MC	"	"	A3, A4, A5	Check for response similar to Fig. 1. If necessary, adjust A3 for maximum gain, A4 to place 45.75MC marker at 50% on high frequency side and A5 to place 42.25MC marker at 50% on other side.
4.	Place a thin insulated, metal strip between the Mixer-Osc. tube (V202) and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	41.25MC	"	"	A6	Adjust to place marker in trap notch as in Fig. 2.
5.	"	"	47.25MC	"	"	A7	"
6.	"	"	42.25MC 45.0MC 45.75MC	"	"	A8, A9, & Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown.

SOUND IF ALIGNMENT

Preset A10 fully counterclockwise.
Tune the receiver to a strong local station (preferably with a test pattern and tone signal or music). Adjust A10 just past the point of maximum sound and MINIMUM distortion.
Reduce the signal input by disconnecting the antenna or connecting an adjustable pad across the antenna terminals so that with the volume set near maximum, sound is at a low level. Set the Fine Tuning control to the verge of distortion.
Adjust A11, A12 and A13 for MINIMUM distortion.

4.5MC TRAP ALIGNMENT

Tune in a strong TV signal and set Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible. Adjust A14 for MINIMUM beat interference.

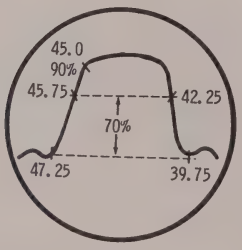


FIG.1

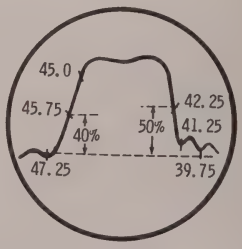
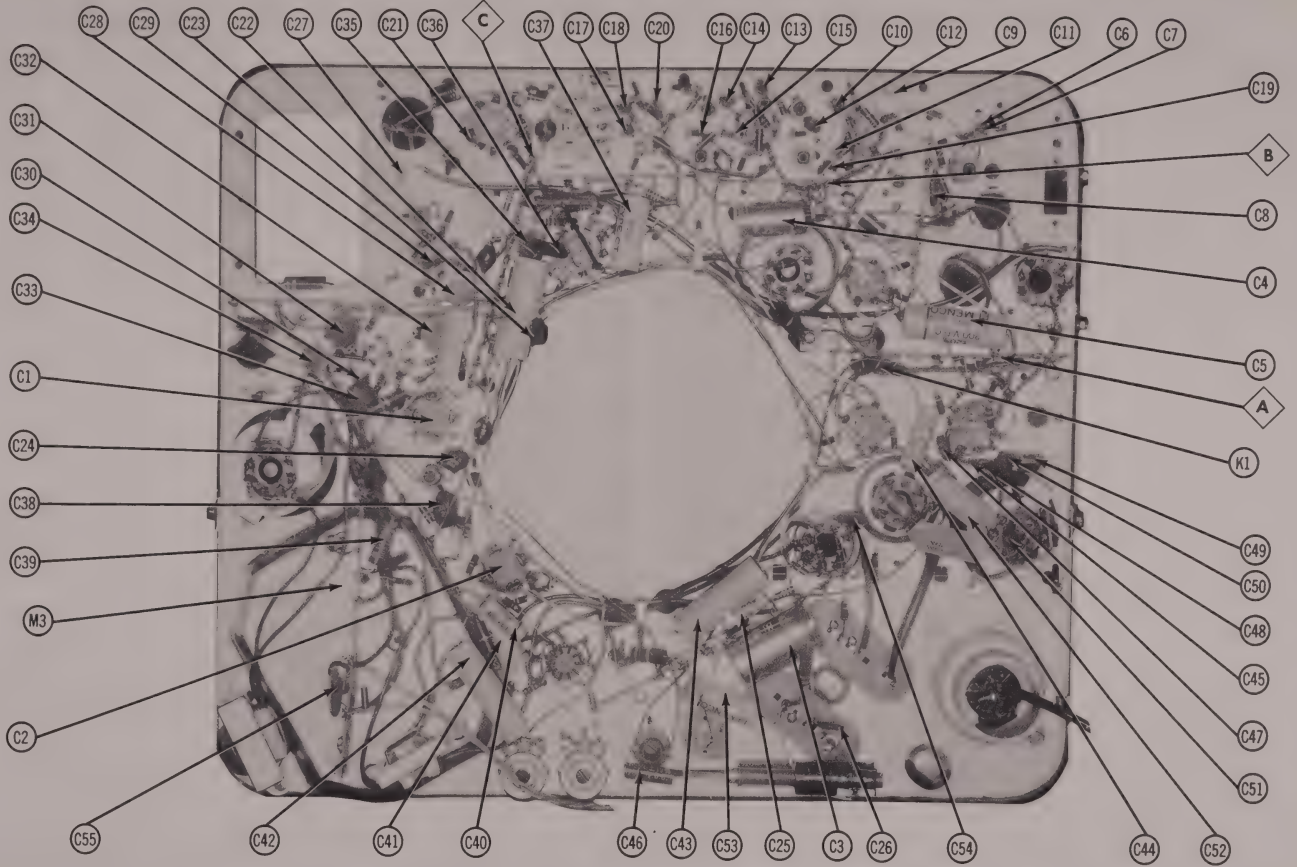
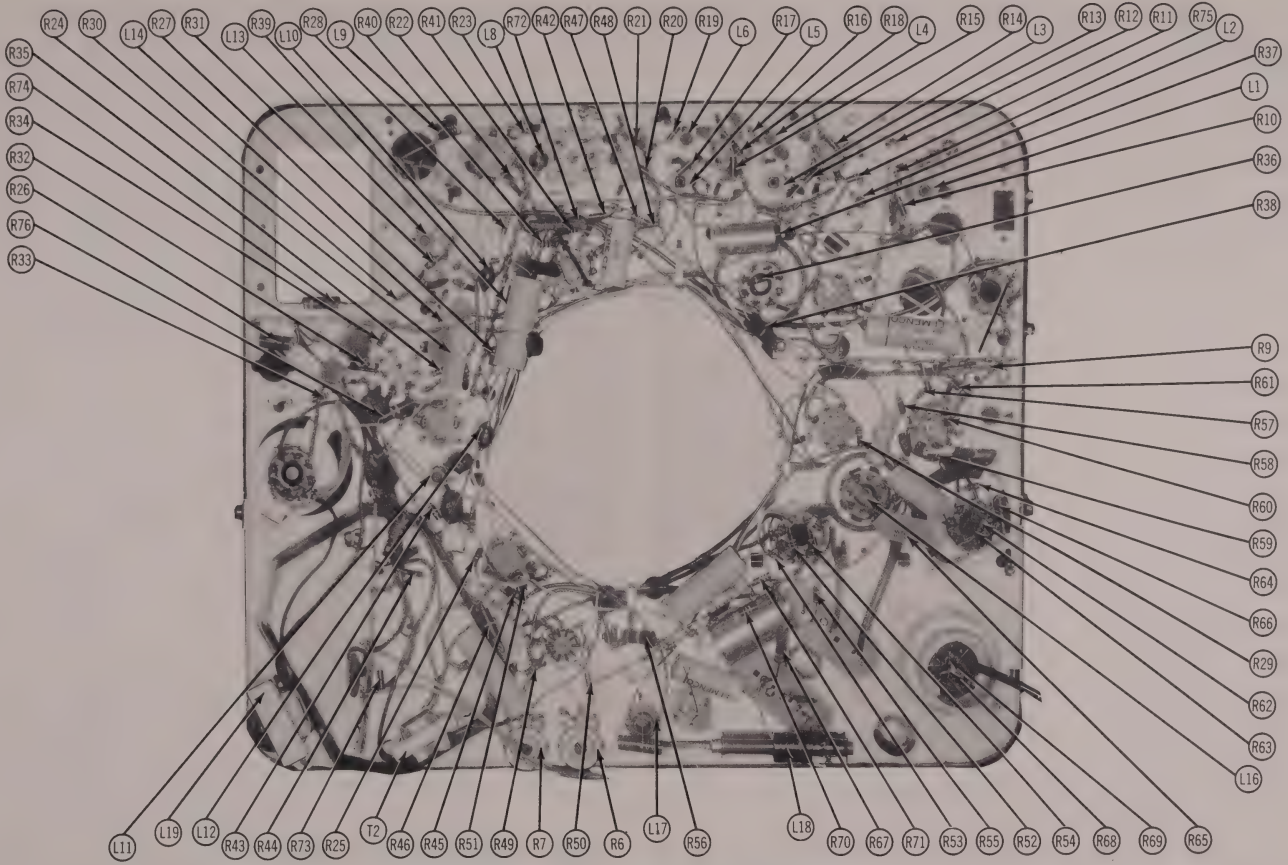


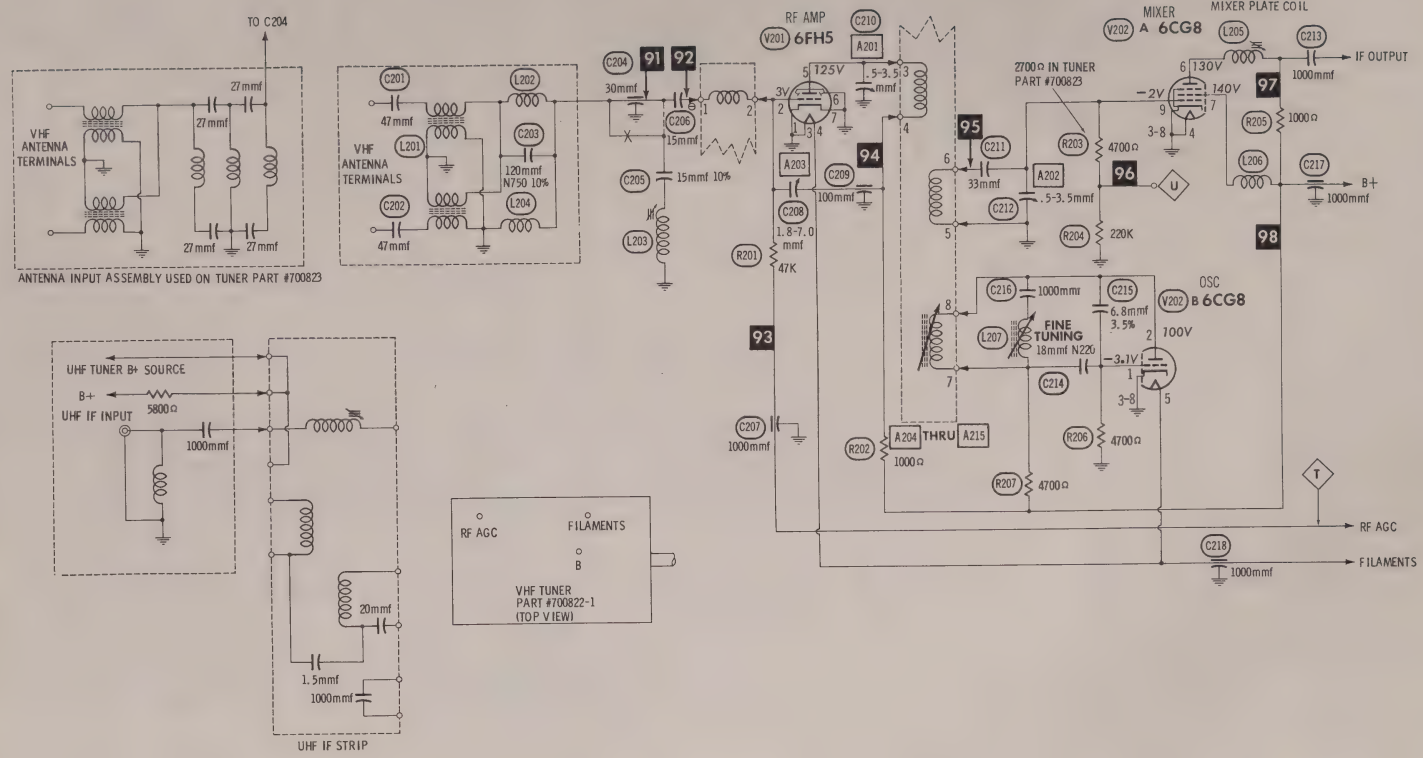
FIG.2



CHASSIS BOTTOM VIEW - CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.



A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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VHF TUNER 700822-1, 700823-1

MAGNAVOX CHASSIS U29 SERIES, V29 SERIES

TUNER ALIGNMENT INSTRUCTIONS
700822-1, 700823-1

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201 thru A203 ..... GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A204 thru A215 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531

RF AND MIXER ALIGNMENT

Connect the negative lead of a 4 volt bias supply to point Ⓣ . Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Turn Contrast fully clockwise.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. to point Ⓣ Low side to chassis.	A201, A202, A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope.
2.	"	"	213MC	211.25MC 215.75MC	13	"		Check for response curve similar to Fig. 201. If markers fall below 70% on any channel, make compromise adjustment of A201 and A202 with channel switch set to that channel. Check to see that other channels have not been seriously affected.
			207MC	205.25MC 209.75MC	12			
			201MC	199.25MC 203.75MC	11			
			195MC	193.25MC 197.75MC	10			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
			177MC	175.25MC 179.75MC	7			
			85MC	83.25MC 87.75MC	6			
			79MC	77.25MC 81.75MC	5			
			69MC	67.25MC 71.75MC	4			
			63MC	61.25MC 65.75MC	3			
			57MC	55.25MC 59.75MC	2			

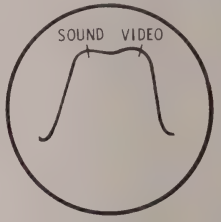


FIG. 201

OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the Fine Tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K across Video Det. load.	A204	Adjust to place sound marker in trap notch as in Fig. 202. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A205	
			201MC	199.25MC 203.75MC	11		A206	
			195MC	193.25MC 197.75MC	10		A207	
			189MC	187.25MC 191.75MC	9		A208	
			183MC	181.25MC 185.75MC	8		A209	
			177MC	175.25MC 179.75MC	7		A210	
			85MC	83.25MC 87.75MC	6		A211	
			79MC	77.25MC 81.75MC	5		A212	
			69MC	67.25MC 71.75MC	4		A213	
			63MC	61.25MC 65.75MC	3		A214	
			57MC	55.25MC 59.75MC	2		A215	

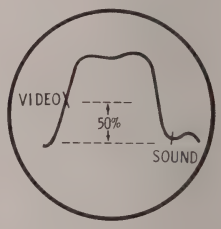


FIG. 202

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (CBS • GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	1st Video IF Amp.	6BZ6
V2	2nd Video IF Amp.	6BZ6
V3	3rd Video IF Amp.	6CB6A
V4	Video Output	12BY7A
V5	AGC Keying	6AU6
V6	Sound IF Amp.	6AU6
V7	Audio Det.	6DT6
V8	AGC Clamper	6AT6
V9	Voltage Divider	6DG6GT (6W6GT)*
V10	Sync Sep. - Sync Phase Inverter	6CG7
V11	Vert. Osc. - Vert. Output	6CM7
V12	Horiz. Mult.	6CG7
V13	Horiz. Output	6DQ6A
V14	Damper	6AX4GT
V15	HV Rect.	1B3GT/1G3GT (1G3GT)*
V16	LV Rect.	5U4GB

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA					NOTES
	MAGNAVOX PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
V17	21DLP4 24AUP4		21DLP4 ①	21DLP4 ① 24AUP4 ①	21DLP4 ② 24AUP4 ②	① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■40	350	270021-52		D0471	FP420.15	TMQ-181	TMQ-181	
B	▲70	350							
C	▲10	350							
D	50	50							
C2A	▲30	350	270021-64	AFH4-56-93.5	D0418	FP420.33	TMQ-182	TVL-4634.7	
B	■20	350							
C	▲5	350							
D	100	200							
C3	20	350	270027-20	PRS1735	BR2035	TC65	TD-20-350	TVA-1608	
C4	2	50	270027-22	PRS1300	BBR2-50	TC302	TD-2-50	TVA-1301	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.22 200V		P288N-22		CUB2P22	2DP-4-224	GEM-2022	2TM-P22
C6	12 NPO 5%			TCZ-12	C10Q12C		CNO-412	10TCC-Q12
C7	13 NPO 5%			TCZ-12	C10Q13C		CNO-412	10TCC-Q12
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C9	.5-3			829-3		VC-1	CT565	
C10	800 10%		DI-820	DD-801	1R5T8	CCD-801	GP382	10TS-T80
C11	1 NPO		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C12	27 NPO 5%			TCZ-27	C10Q27C		CNO-427	10TCC-Q27
C13	680		BPD-00068	DD-680	BYA1CT68	CCD-681	GP368	10TS-T68
C14	800 10%		DI-820	DD-801	1R5T8	CCD-801	GP382	10TS-T80
C15	.82 NPO							
C16	20 NPO 5%			DTZ-20	C10Q2C			10TS-Q20
C17	8 NPO 5%		NPO-DI 8.2		C10V8C			10TCC-V8.2
C18	800 10%		DI-820	DD-801	1R5T8	CCD-801	GP382	10TS-T80
C19	680		BPD-00068	DD-680	BYA10T68	CCD-681	GP368	10TS-T68
C20	1500		BPD-0015	DD-152	BYA10D15	CCD-152	GP215	5HK-D15
C21	680		BPD-00068	DD-681	BYA10T68	CCD-681	GP368	10TS-T68
C22	.22 400V		P488N-22		CUB4P22	2DP-4-224	GEM-4022	4TM-P22
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C24	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C25	.0033 600V		P688N-0033	D6-332	CUB6D33	6DP-1-332	GEM-6233	6TM-D33
C26	1000 2000V		HVD-30-1000	DD30-102	HVB20D1	3CCD-102	2HV-210	BL-D10
C27	3.3 10%		NPO-SO 3.3	TCZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C28	3900		BPD-004	DD-392	L10D39	CCD-392	GP239	10TS-D39
C29	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C30	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C31	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C32	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C33	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C34	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C35	2000		BPD-002	DD-202	BYA10D2	CCD-102	GP220	5HK-D20
C36	150		1468-00015	DD-151	L10T15	CM-19B-151M	MC236	1FM-315
C37	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C38	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C39	.0051 400V 5%		V84C6D5-5%			CM-20B-510J		6TM-D5
C40	.0047 400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C41	.047 400V 10%		V84C4S47-10%		PM4S47	4DP-3-473		4TM-S47
C42	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C43	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P1
C44	.047 200V 10%		V84C2S47-10%		PM2S47	4DP-3-473		2TM-S47
C45	800 10%		DI-820	DD-861	1R5T8	CCD-801	GP382	10TS-T80
C46	.0039 200V 10%		V84C6D4-10%		PM6D4	6DP-1-392	JL-239	6TM-D4
C47	47 NPO 10%		NPO-DI 470	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C48	360 5%		1469-00036		5R5T36	CM-20B-361J		MS-336
C49	430 5%		1469-00043		5R5T43	CM-20D-431J		MS-343
C50	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C51	1000 10%		DI-1000	DD-102	1R5D1	CCD-103	GP210	10TS-D10
C52	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4142	4TM-S47
C53	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C54	68 2000V N750	#250175-22						
C55	10000 1400V		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10
C56	150		BPD-00015	DD-151	L10T15	CCD-151	GP315	10TS-T15
C57	680		BPD-00068	DD-681	BYA10T68	CCD-681	GP368	10TS-T68

\# Magnavox Part Number.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS—IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1 meg		230146-17	AB-764 *	B47-1meg-2*	B13-127 *	TA15A *	TV Balance
B	50K Stop							
C	Shaft			AK-1	Not Req.	T344	Not Req.	
R2A	500Ω	↓	230126-73	B-416	A47-750-S	Q17-168	U3	Contrast Note 1
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	300K	↓	230126-75	B-48	Q11-139	T43	Not Req.	Brightness Note 3
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	50K	↓	230146-9	B2-51	B47-50K-S	B11-133	PTA54L	Horiz. Hold Note 3
B	Shaft			Not Req.	Not Req.	T344	Not Req.	
R5A	1 Meg	↓	230146-11	B2-743	B47-1 Meg-S	B11-138	PTA39L	Vert. Hold Note 3
B	Shaft			Not Req.	Not Req.	T366	Not Req.	
R6A	2500Ω	↓	230146-8	AB-6	B47-2500-S	B12-123	PTA52L	Vert. Linearity
B	Shaft			AK-19	Not Req.	T344	Not Req.	
R7A	1 Meg	↓	230146-2	B2-58	B47-1 Meg-S	B11-139	TA38L	Vert. Height
B	Shaft			Not Req.	Not Req.	T344	Not Req.	

* Use 47K resistor in series with left hand terminal, viewed from shaft end terminals down.

Note 1: Some versions may use Part #230126-71.
Chassis 29-03-1 uses 500Ω contrast lneg volume with switch (Part #230149-4).

Note 2: Chassis 29-07-11 uses 200K brightness (Part #230126-72).
Some versions may use Part #230146-10.

Note 3: Chassis 29-03-11 uses 50K Horiz. Hold, 1.5meg Vert. Hold (Part #230149-3).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R8	220K	
R9A	9 lmeg	
B	330K	
C	330K	
D	56K	
R10	1Ω	
R11	15K	
R12	22K	
R13	1500Ω	
R14	47Ω	
R15	1500Ω	
R16	12K	
R17	1500Ω	
R18	47Ω	
R19	22K	
R20	1500Ω	
R21	120Ω	
R22	3900Ω 5%	
R23	470K	
R24	42000Ω 5% 5W	#240073-1
R25	22K	
R26	1000Ω 2W	
R27	270K	
R28	33K	
R29	47K	
R30	1500Ω (15Ω) *	

ITEM No.	RATING	REMARKS
R31	270Ω	
R32	270K	
R33	470K	
R34	6800Ω	
R35	680Ω	
R36	1meg 5%	
R37	1meg 5%	
R38	220Ω 2W	
R39	10K	
R40	470K	
R41	4.7meg	
R42	1meg	
R43	100K	
R44	2meg 5%	
R45	22K	
R46	1meg 1W	
R47	680K	
R48		#230130-2
R49	11K 5%	
R50	1000Ω	
R51	270K	
R52	200Ω	
R53	270Ω	
R54	8200Ω	
R55	8200Ω	
R56	180 2W	

ITEM No.	RATING	REMARKS
R57	4.7meg	
R58	1600Ω	
R59	1500Ω	
R60	100K	
R61	120K	
R62	6800Ω	
R63	4700Ω	
R64	470K	
R65	8500Ω 5% 5W	#240071-35
R66	22Ω 1W	
R67	33000Ω 1W	
R68	4.7Ω 1W	
R69	15K	
R70	270K	
R71	270K	
R72A	1meg	
B	22K	
C	33000Ω	
D	33000Ω	
E	82K	
R73	lmeg	
R74	680Ω 1W	
R75	6800Ω	
R76	22K 1W	
R77	150K	
R78	390K	

Magnavox Part Number
* Alternate Value

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA MAGNAVOX PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Rem PART No.	NOTES
L1A	41.25 MC Trap	380803-1	30-1044	20-1044	TV-131	6326	VF-4	
B	47.25MC Trap		17-4538	27-4538	TV-133			
L2	1st Video IF	380798-1	30-1044	20-1044	TV-131	6326	VF-4	
L3	39.75MC Trap	380801-1	17-4538	17-4538	TV-132			
L4	2nd Video IF	380799-1	17-4533	17-4533	TV-130	6329	VF-3	
L5	47.25MC Trap	380801-1	17-4538	17-4538	TV-133			
L6	3rd Video IF	380799-2	17-4533	17-4533	TV-130	6329	VF-3	
L7A	4th Video IF	380800-1						①
B	RF Choke		19-1002	19-1002	RC-563	4606		3uh
C	RF Choke		19-1009	19-1009		4611		8uh
L8	Shunt Peaking Coil	380823-16	19-3300	19-3300	TV-168	6330	VP-8	270uh ②
L9	Cathode Choke	380820-1	19-1001	19-1001	RC-562	4604	VP-9	1.5uh
L10	Shunt Peaking Coil	380823-8	19-3250	19-3250	TV-165	6181	VP-6	225uh
L11	4.5MC Trap	380714-1	17-5400	17-5400	TV-184	1499	SF-3	
L12	Series Peaking Coil	380823-14	19-3075 †	19-3075 †	TV-166	6172 †	VP-2 †	75uh ③
L13	1st Sound IF	380772-1	17-5402	17-5402	TV-148 ▲	1470 ▲	SF-2	
L14	2nd Sound IF	380715-1			TV-146 ▲			
L15	Quadrature Coil	380715-2	17-1031 ■	17-1031 ■	TV-134 ■	1481 ■	SD-5	
L16	RF Choke		19-1005	19-1003	RC-564	4608		3.9uh ④

① Includes 47mmf cap. and M6.
② Alternate value 400uh.
③ Wound on 82000 resistor.
④ RC Part #C1A.

† Paralled with 82000 resistor.
▲ Disrupard lug.
* Replace mounting hole.
■ Drill mounting hole.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Miller PART No.	Rem PART No.	Thordarson PART No.	NOTES
L17	55Ω		380519-2	HS-5	TV-163	6330	H-103	HS-5	Horiz. Stabilizer

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Miller PART No.	Rem PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L18	Width Coil (7-22MH)	380693-1	WC-19 ①	MWC-12 ②	6315 ②	20UR3A ②	QRC104 ②	WC-18 ①	WC-19 ①	WLC-3 ③
	Alt. Width Coil	380693-2 ④	WC-34 ③④	MWC-13 ③	6315 ③	20UR3A ③	QRC104 ③	WC-18 ③	WC-34 ③④	WLC-3 ③

① Drill new mounting hole(s).
② Used only with 380823-1 Horiz. Output Transformer.
③ Use parallel coil.
④ Use original mounting bracket.

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ⁴C/₄	REPLACEMENT DATA MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Rem PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L19	.200A	58Ω	.5 Hy.	230084-4						

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Rem PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 1.7A	370VCT @ .200A	5V @ 3A	300170-1				P-8358		R-97BC①
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 9A									

① Use MB-20 mounting bracket kit.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Rem PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Vert. Osc.	230263-5	26A05	A-3003	V405	VB01B	A-8135	26A05	A-97X
	Alt. Vert. Osc.	230263-6	26A05	A-3003	V405	VB01B	A-8135	26A05	A-97X
T3	Vert. Output	230278-2							A-15EX
T4	Yoke-Horiz. (30MH) (90°)-Vert. (41MH)	700703-1	T-16 ①②	MDF-02 ①③	T90F18/45 ③	PCM2045 ③	DY-16A ①	T-16 ①②	T-6 & TC-113 ③
	Rear Cover & Centering Device	380771-1							
T5	Horiz. Output	380777-1	FLY-156*	HVO-175 *				FLY-156 *	D-122 *
	Alt. Horiz. Output	380823-1 ③	FLY-79 **	HVO-119 **	X152 **		A-8295 **	FLY-79 **	D-92 **
	Alt. Horiz. Output	380700-2	FLY-156 ***	HVO-175 ***	X152 ***		A-8295 ***	FLY-156 ***	D-122 ***

① Requires new rear cover, centering device, and yoke clamping device. Use original yoke damping networks.
② Mount with leads out top and connect same as original.
③ 380823-1 Width Coil must be used with 380823-1 Horiz. Output Transformer.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Rem Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	1	8	8				8	1
	3	5	5				5	3
	4	3	3				3	4
	8	2	2				2	8
	6	1	1				1	6
Loosest Width Coil Arrest	8 & 6	2 & 1	2 & 1				2 & 1	8 & 6

**HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Rem Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	8	8	8				8	8
	5	5	5				5	5
	3	3	3				3	3
	2	2	2				2	2
	1	1	1				1	1
Connect Width Coil Arrest	2 & 1	2 & 1	2 & 1				2 & 1	2 & 1

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA MAGNAVOX PART No.	QUAM PART No.	NOTES
SP1	12"	PM	3-4Ω	594045	12A31	
SP2	4" x 8"	PM	6-8Ω	594010	48AZ26.5	
SP3	4"	PM	3-4Ω	594018-1	4A15	
SP4	12"	PM	3-4Ω	594045	12A31	
SP5	4" x 8"	PM	6-8Ω	594010	48AZ25.6	
SP6	4"	PM	3-4Ω	594018-1	4A15	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MAGNAVOX PART No.	REPLACEMENT DATA
K1	Horiz. AFC	1000mmf, 1000mmf, 4700mmf, 100K, 100K, 470K	230208-1	

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA MAGNAVOX PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M5		530045-3 *	171 *	E3016 *			* Dual Selenium Diode * Silicon, 2 required.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA MAGNAVOX PART No. FUSE	MAGNAVOX PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2	3AG	1/4A 125V	181057-30		313. 250 (3AG 1/4A 125V)	357001	MDL 1/4A	4405
M3	1 1/2"	#24 Wire						

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA MAGNAVOX PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M4	1N81 *		1N80	1N64	1N64	Video Det. (Pigtail) * Alternate (1N64)

MISCELLANEOUS

ITEM No.	PART NAME	MAGNAVOX PART No.	NOTES
M6	Tuner	700823-1	VHF, used in Chassis V29-11-11, V29-12-11
	Tuner	700823-1	VHF, used in Chassis U29-11-11, U29-12-11
	Tuner	700731-1	VHF, used in Chassis V29-03-11, V29-03-11, V29-04-11, V29-05-11, V29-06-11, V29-07-11, V29-08-11
	Tuner	700723-1	VHF, used in Chassis U29-03-11, U29-03-11, U29-04-11, U29-05-11, U29-06-11, U29-07-11, U29-08-11
	Tuner	700862-1	VHF, used in Chassis V29-09-11, V29-09-11
	Tuner	700862-2	VHF, used in Chassis V29-13-11
	Tuner	700692-1	VHF, used in Chassis U29-01-L
	Tuner	700688-1	UHF

MAGNAVOX CHASSIS U29-01-11, U29-01-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -11-11, 12-11, V29-01-11, -02-11, -03-11, -04-11, -05-11, -06-11, -07-11, -08-11, -09-11, -11-11, -12-11, -13-11

FOLDER 2

PARTS LIST AND DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

TUNER PARTS LIST AND DESCRIPTIONS

700822-1, 700823-1

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6FH5	V202	Mixer-Osc.	6CG8

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	47		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C202	47		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C203	120 N750 10%			TCN-120	C10T12U	CCTN-121	CN7-312	10TCU-T12
C204	30	#250279-1						
C205	15 10%		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C206	15	Note 1	NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C207	1000		EF-001	MFT-1000		CCF-102	CT280A	
C208	1.8-7	#250145-3		829-7				
C209	100		EF-0001	MFT-100				
C210	.5-3.5			829-3		CV-1	CT565	
C211	33		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C212	.5-3.5			829-3		CV-1	CT565	
C213	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C214	18 N220	#250287-1				*		10TCR-Q18
C215	6.8 3.5%		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C216	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C217	1000		EF-001	MFT-1000		CCF-102	CT280A	
C218	1000		EF-001	MFT-1000		CCF-102	CT280A	

Note 1. A 28mmf capacitor (Part #250280-1) used in Tuner 700823. # Magnavox Part No.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R201	47K	
R202	1000Ω	
R203	4700Ω	Note 1

ITEM No.	RATING	REMARKS
R204	220K	
R205	1000Ω	
R206	4700Ω	

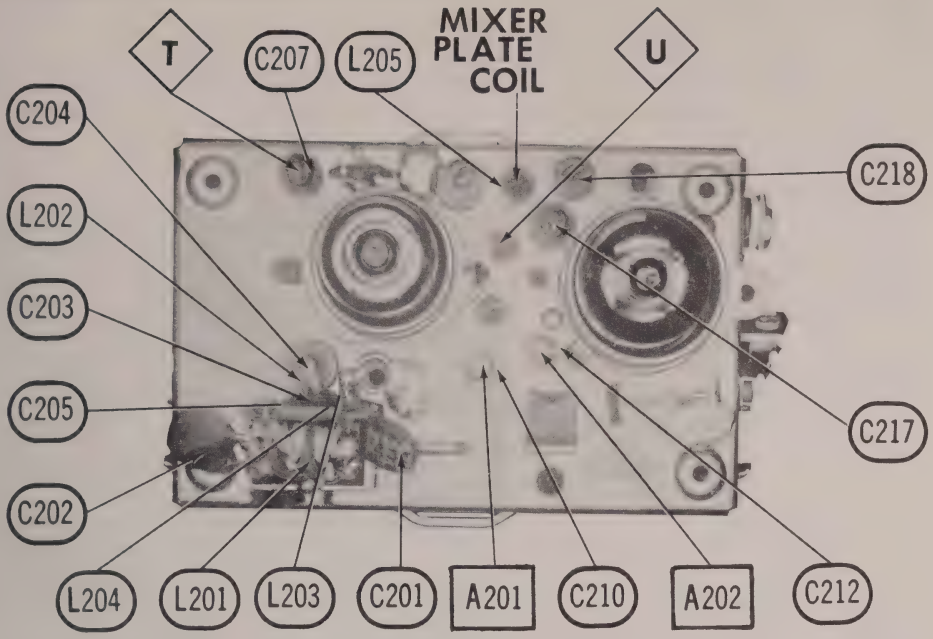
ITEM No.	RATING	REMARKS
R207	4700Ω	

Note 1. A 2700Ω resistor used in Tuner 700823.

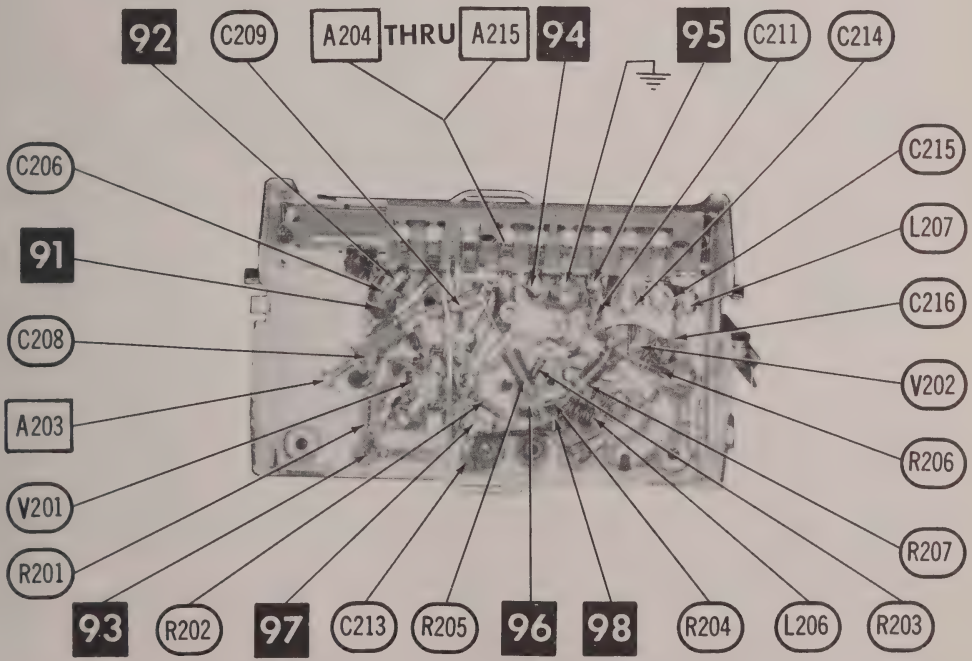
COILS (RF-IF)

ITEM No.	USE	MAGNAVOX PART No.	NOTES
L201	Ant. Trans.	360813-1	
L202	RF Choke	360740-3	
L203	Trap Coil	360740-4	
L204	RF Choke	360812-1	

ITEM No.	USE	MAGNAVOX PART No.	NOTES
L205	Mixer Plate Coil	360765-2	
L206	RF Choke	360810-1	
L207	Fine Tuning Coil	360811-1	



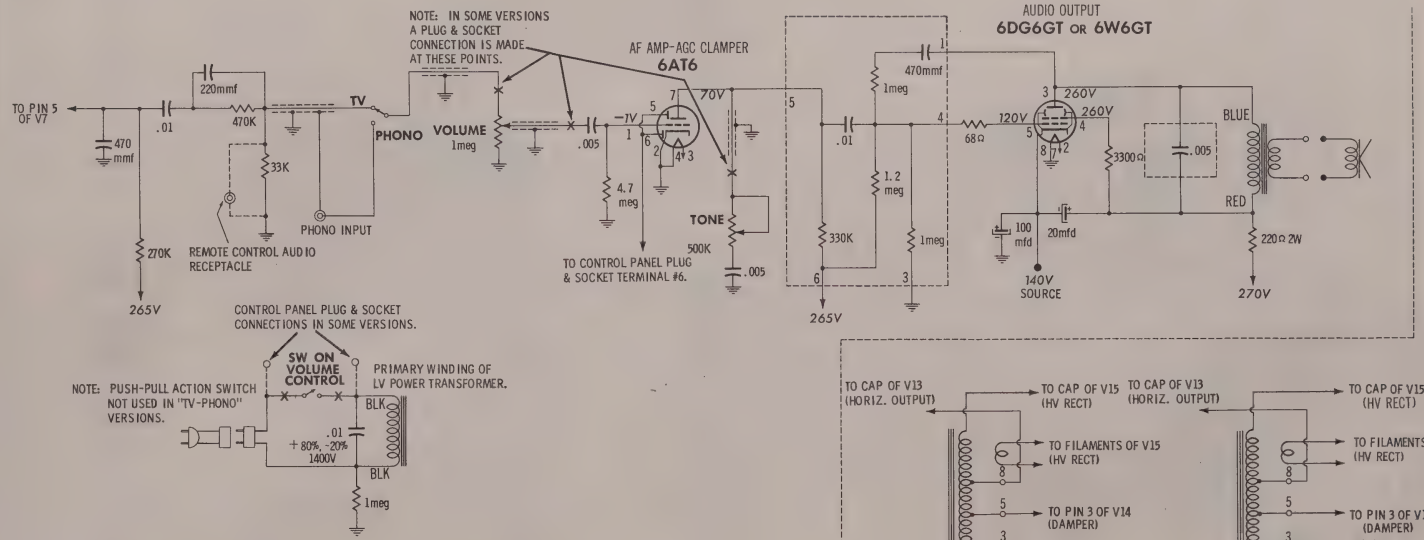
VHF TUNER 700822-1 - TOP VIEW



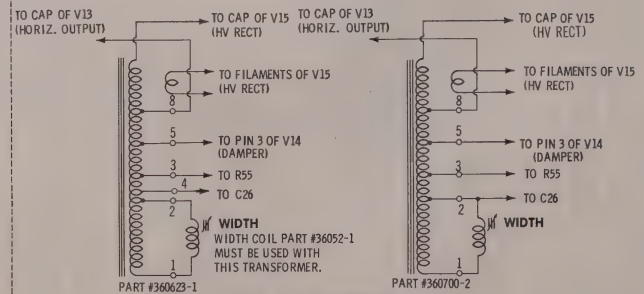
A Howard W. Sams CIRCUITRACE* Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VHF TUNER 700822-1 - BOTTOM VIEW



AC INPUT, AUDIO AMPLIFIER & OUTPUT CIRCUIT USED IN CHASSIS U/V29-01-11 THRU U/V29-08-11, V29-09-11 & V29-13-11.


TO CAP OF V13 (HORIZ. OUTPUT)
TO CAP OF V15 (HV RECT)
TO FILAMENTS OF V15 (HV RECT)
TO PIN 3 OF V14 (DAMPER)
TO R55
TO C26
WIDTH
WIDTH COIL PART #36052-1 MUST BE USED WITH THIS TRANSFORMER.
PART #360623-1
TO CAP OF V13 (HORIZ. OUTPUT)
TO CAP OF V15 (HV RECT)
TO FILAMENTS OF V15 (HV RECT)
TO PIN 3 OF V14 (DAMPER)
TO R55
TO C26
WIDTH
PART #360700-2

HORIZ. OUTPUT TRANSFORMER CIRCUITS USED IN SOME VERSIONS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ALTERNATE CIRCUITS

MAGNAVOX CHASSIS
U29 SERIES, V29 SERIES

CHASSIS - TOP VIEW

CONTROL PANEL

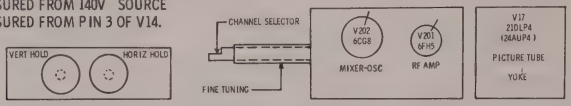
RESISTANCE MEASUREMENTS

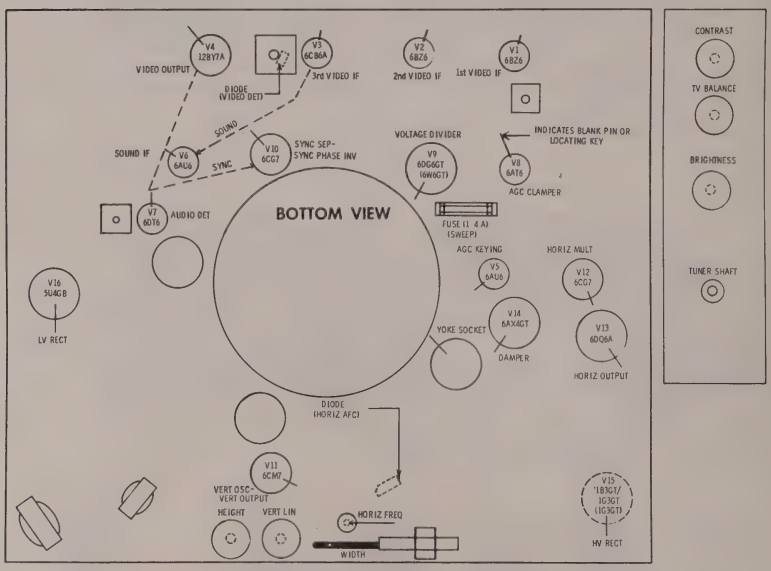
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	90K	47Ω	.1Ω	0Ω	▪ 1500Ω	▪ 1500Ω	0Ω		
V2	6BZ6	57K	47Ω	.1Ω	0Ω	▪ 1500Ω	▪ 1500Ω	0Ω		
V3	6CB6A	.4Ω	120Ω	.1Ω	0Ω	▪ 1500Ω	▪ 1500Ω	0Ω		
V4	12BY7A	• 30Ω	4400Ω	0Ω	.1Ω	.1Ω	0Ω	† 5300Ω	† 23K	0Ω
V5	6AU6	† 25K	† 1000Ω	0Ω	.1Ω	385K	† 3300Ω	† 1000Ω		
V6	6AU6	2.8Ω	0Ω	.1Ω	0Ω	▪ 1500Ω	▪ 1500Ω	270Ω		
V7	6DT6	4Ω	680Ω	.1Ω	0Ω	† 270K	▪ 6800Ω	470K		
V8	6AT6	0Ω	0Ω	0Ω	.1Ω	1 meg	1meg	0Ω		
V9	6DG6GT	TP	0Ω	† 220Ω	† 220Ω	500K	NC	.1Ω	¶	
V10	6CG7	† 1meg	4.7meg	0Ω	0Ω	.1Ω	† 4300Ω	22K	3300Ω	0Ω
V11	6CM7	† 5500Ω	NC	0Ω	0Ω	.1Ω	‡ 1.3meg	• 2.5meg	• 1.7meg	• 2000Ω
V12	6CG7	† 6300Ω	2.3meg	1500Ω	0Ω	.1Ω	† 120K	• 130K	1500Ω	0Ω
V13	6DQ6A	NC	.1Ω	TP	† 8500Ω	470K	TP	0Ω	22Ω	TOP CAP † 26Ω
V14	6AX4GT	TP	NC	¶ 550K	NC	† 0Ω	NC	0Ω	.1Ω	
V15	1B3GT 1G3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP † 410Ω
V16	5U4GB	NC	¶	NC	26Ω	NC	29Ω	NC	¶	
V17	21DLP4	0Ω	0Ω	Pin 6 † 270K	Pin 10 † 270K	Pin 11 • 300K	Pin 12 .1Ω			
V201	6FH5	0Ω	1meg	0Ω	.1Ω	▪ 1000Ω	0Ω	0Ω		
V202	6CG8	4700Ω	▪ 4700Ω	0Ω	0Ω	.1Ω	▪ 1000Ω	▪ .4Ω	0Ω	225K

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

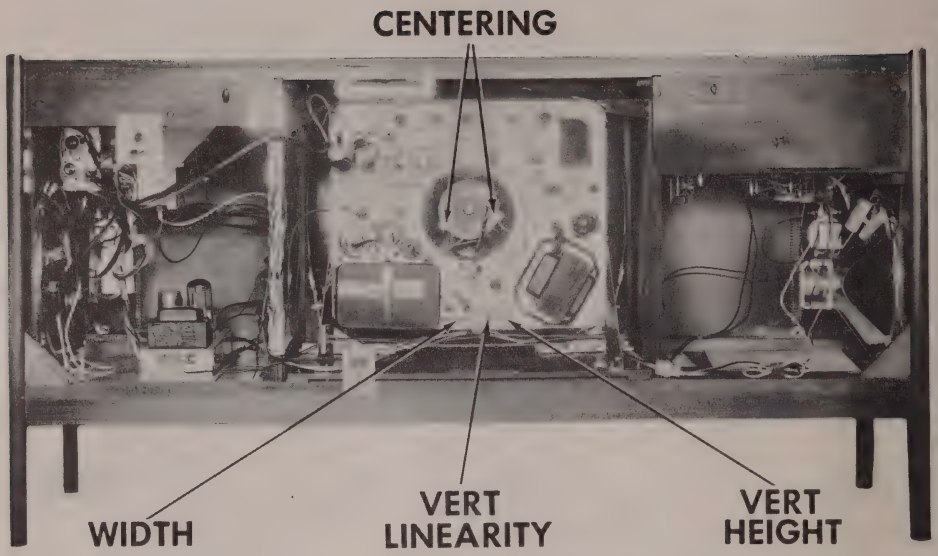
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 270V SOURCE.
▪ MEASURED FROM 140V SOURCE
‡ MEASURED FROM PIN 3 OF V14.

NC NO CONNECTION
TP TIE POINT





TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Set the Horizontal Hold control to the center of its range. Adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally. Keep turning B1 in the same direction until the picture just falls out of sync. Reverse the direction of rotation until the picture just falls into sync. Rotate the Horizontal Hold control to both extreme ends of rotation. The picture should either stay in sync at both ends of rotation or should fall out of sync by an equal number of bars at each end. If neither of these conditions occur, repeat procedure.

Adjust the Width slug (B2) for a picture slightly wider than necessary to fill the picture mask horizontally.

PHOTOFACT® Folder with CIRCUITRACE®

ADMIRAL MODELS
Y853, Y858, Y865, Y866 (Ch. 5B5)

ADMIRAL MODELS
Y853, Y858, Y865, Y866 (Ch. 5B5)

MODEL Y858

ADMIRAL MODELS
Y853, Y858, Y865, Y866 (Ch. 5B5)

TRADE NAME	Admiral Models Y853, Y858, Y865, Y866 (Ch. 5B5)
MANUFACTURER	Admiral Corp., 3800 W. Cortland Street, Chicago 47, Illinois
TYPE SET	AC Operated 5 Tube AM Receiver With Electric Clock
POWER SUPPLY	110-120 Volts AC, 60 Cycles
RATING	23 Watts, .23 Amp. @117 Volts AC (Less Clock)
TUNING RANGE—BROADCAST	535 – 1620KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:
A1 thru A4..... GENERAL CEMENT #5097, 8727
WALSCO #2515
A5, A6..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to antenna stator lug of tuning gang. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	"	1620KC	"	"	A5	"
3.	Loop	1400KC	Tune to 1400KC signal.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

DISASSEMBLY

1. Remove 2 screws from cabinet bottom.
2. Loosen 2 screws from cabinet back. Push against screws to move chassis and front panel assembly forward.
3. Remove 2 screws previously loosened.

CLOCK REMOVAL

1. Remove chassis and front panel assembly. (See "Disassembly")
2. Remove clock knobs by pulling off shafts.
3. Remove 4 Phillips head screws holding clock. Remove spacers.

Note: Clock face and trim are secured only by the clock.

4. Unsolder clock leads.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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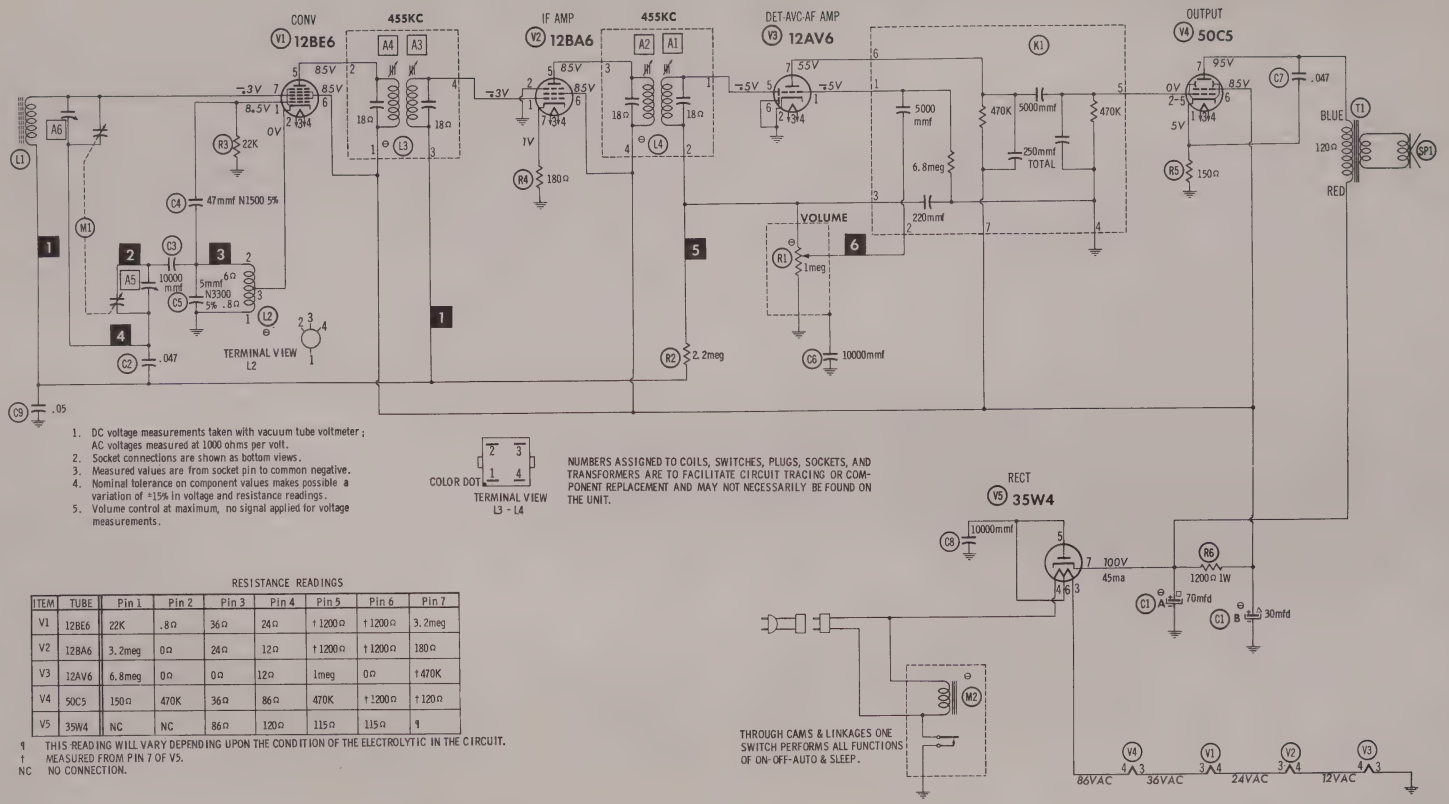
JG695

SET483 FOLDER 3



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.8Ω	36Ω	24Ω	†1200Ω	†1200Ω	3.2meg
V2	12BA6	3.2meg	0Ω	24Ω	12Ω	†1200Ω	†1200Ω	180Ω
V3	12AV6	6.8meg	0Ω	0Ω	12Ω	1meg	0Ω	†470K
V4	50C5	150Ω	470K	36Ω	86Ω	470K	†1200Ω	†120Ω
V5	35W4	NC	NC	86Ω	120Ω	115Ω	115Ω	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE®

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ADMIRAL MODELS
Y853, Y858, Y865, Y866 (Ch. 5B5)

PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆			◆ RAYTHEON ◆ SYLVANIA ◆		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Converter	12BE6	V4	Output	50C5
V2	IF Amplifier	12BA6	V5	Rectifier	35W4
V3	Det. -AVC-AF Amp.	12AV6			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■70	150	67C30-2 ①	PWH2-17-50	BBRD8415	PFP214.3	TDLD-10	PCL-2441	
B	▲30	150							

① Part #67D30-2 may be used in some versions.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.047 400V		P415IN-047	DD-503	BC6S47J	4DP-3-473	ACE6147	4SE-S47
C3	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C4	47 N1500 5%	#65D10-73		TCL-47	*	*		
C5	5 N3300 5%	#65D6-146			*	*		
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C7	.047 400V		P488N-047	DD-103	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C9	.05 200V		P215IN-047	DD-503	BC6S47J	4DP-3-503	ACE615	2SE-S47

Admiral Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	1meg	½	75D25-15					Volume , Note 1

Note 1. Some versions may use Part #75C25-13.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	2.2meg	
R3	22K	

ITEM No.	RATING	REMARKS
R4	180Ω	
R5	150Ω	

ITEM No.	RATING	REMARKS
R6	1200Ω 1W	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		ADMIRAL PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	69B228-4			BC-419			
L2	Osc. Coil	69A190-7 ①						
L3	Input IF Trans.	79D28-5 ②	16-6780	16-6780	BC-356	13-PC1	RF-4	
L4	Onput IF Trans.	79D28-5 ②	16-6780	16-6780	BC-357	13-PC2	RF-4	

① Includes C4, C5, & R3.
② Alternate Part #72D28-65.

PRINTED BOARD

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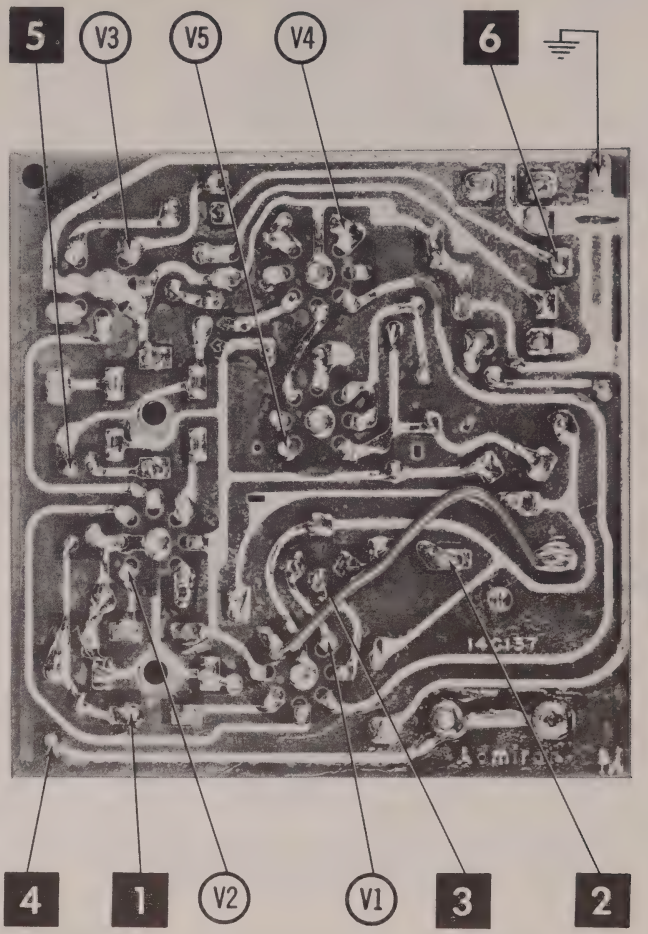
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
			ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
	PRI.	SEC.								
T1	2100Ω	3-4Ω	(Part of SP1)	24S53	A-3025	AU-605	A-3332	24S53	S-12X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
				ADMIRAL PART No.	QUAM PART No.	
	SIZE	FIELD	V. C. IMP.			
SP1	4"	PM	3-4Ω	78B94-2 *	4A07	* Includes T1

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ADMIRAL PART No.	REPLACEMENT DATA	
K1	Audio Coupling	220mmf, 250mmf, 5000mmf, 5000mmf, 470K, 470K, 6.8meg	63C6-7	Aerovox Centralab Cornell-Dubilier Mallory Sprague	PA-113-2 PC-151 116TM2 MS-107 DT-2

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M1	Tuning Cap.	68C78-1	2 Gang
M2	Clock	91C38-1	Models Y853, Y858
	Clock	91C39-1	Models Y865, Y866

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

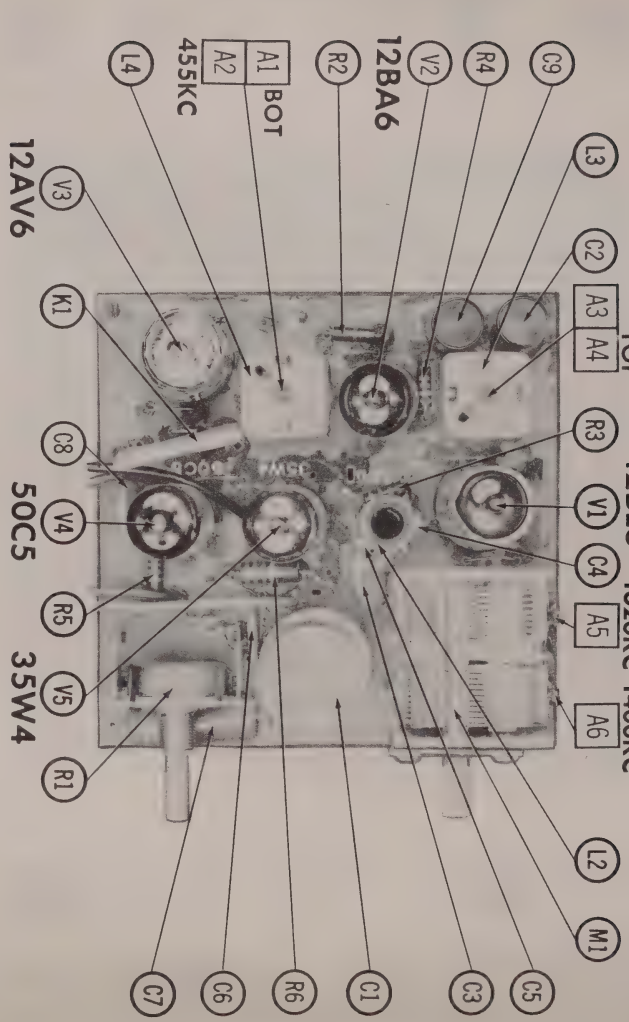
NAME	PART NO.	DESCRIPTION
Knob	33C353-4	Tuning
Knob	33C353-5	Volume
Knob	91C38-10	Clock, Model Y853, Y858
Knob	91C39-10	Clock, Model Y865, Y866
Push Button	33B361-1	
Crystal	24C32-1	Clock Face, Model Y853, Y858
Crystal	24C32-2	Clock Face, Model Y865, Y866
Cabinet Rear	34D129-29	Model Y853
Cabinet Rear	34D129-27	Model Y858
Cabinet Rear	34D129-31	Model Y865
Cabinet Rear	34D129-32	Model Y866
Cabinet Front	34D151-1	All Models Except Y858
Cabinet Front	34D151-2	Model Y858

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874

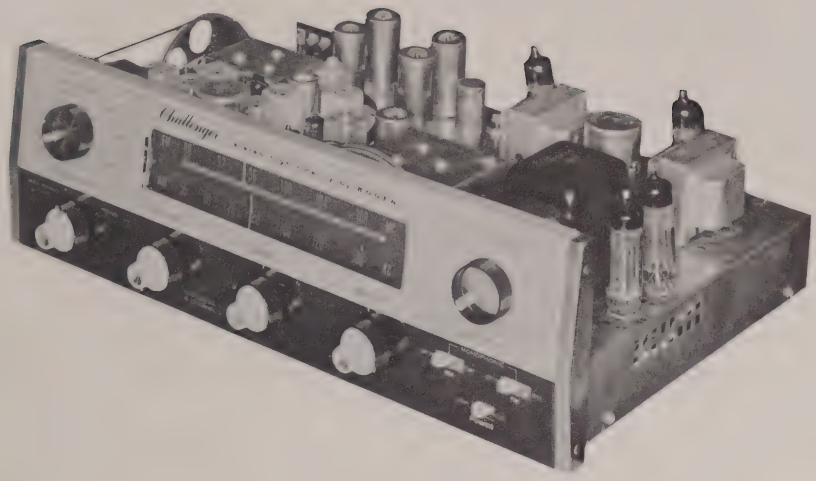
CHASSIS—TOP VIEW



PHOTOFACT® Folder

CHALLENGER
MODEL RC412

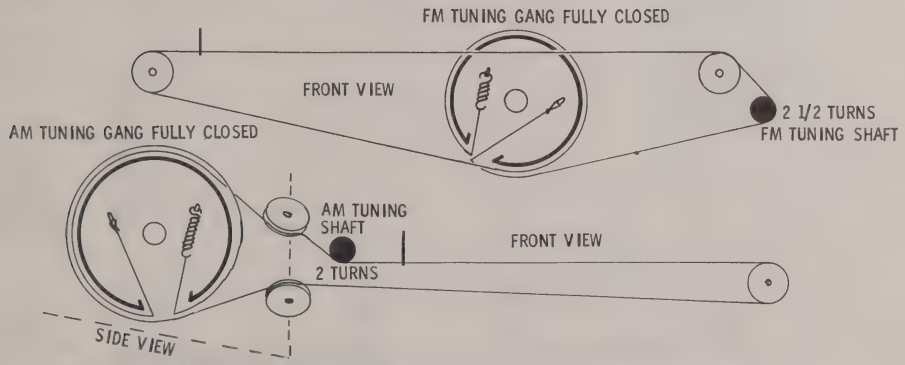
CHALLENGER
MODEL RC412



CHALLENGER
MODEL RC412

TRADE NAME	Challenger Model RC412		
MANUFACTURER	Bogen-Presto Co., A Div. Of The Siegler Corp., P.O. Box 500, Paramus, N. J.		
TYPE SET	AC Operated 15 Tube FM-AM Receiver With Stereo Output		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	105 Watts, 1 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	520 - 1640KC	FREQ. MOD.	88 - 108MC

DIAL CORD STRINGING



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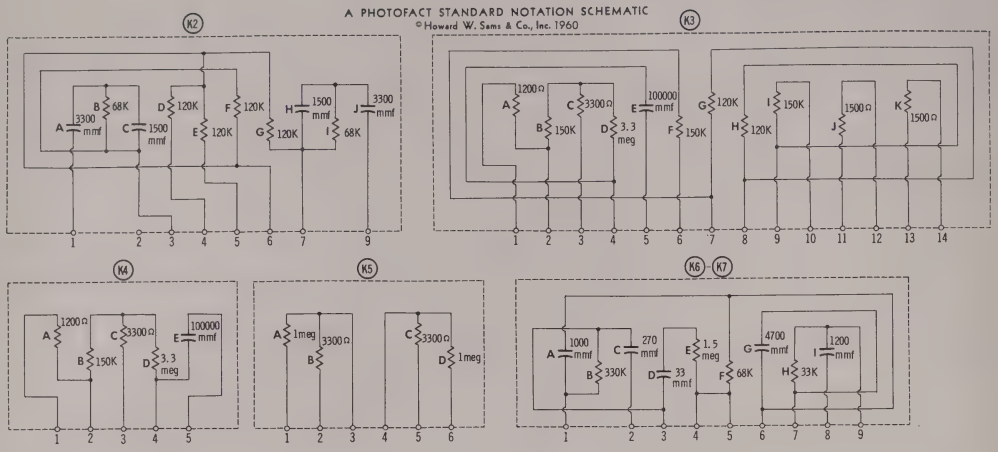
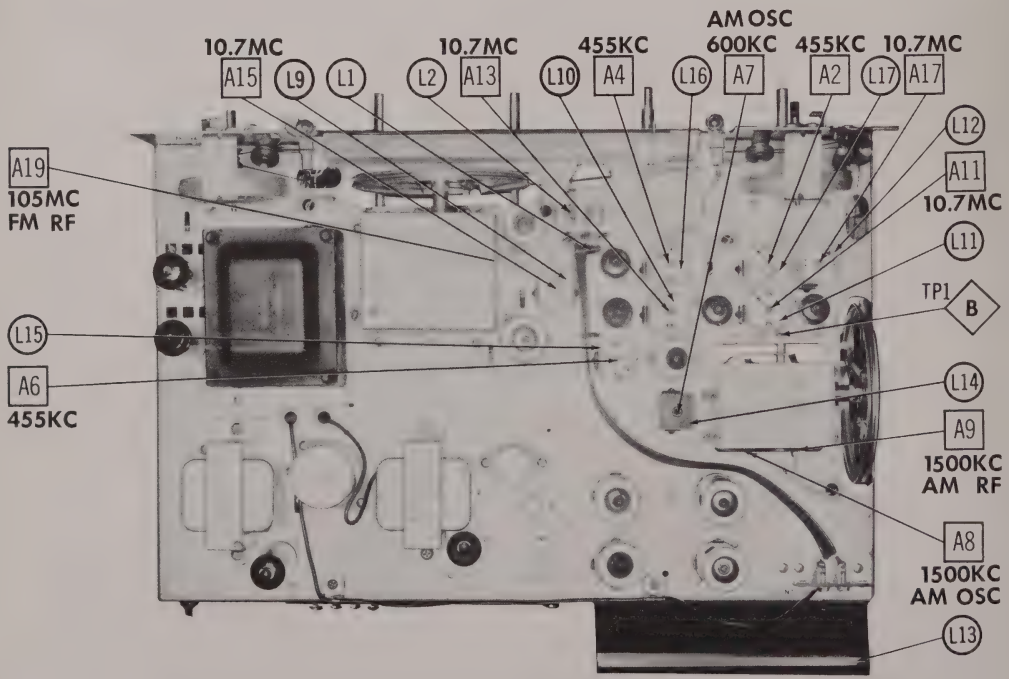
JK816

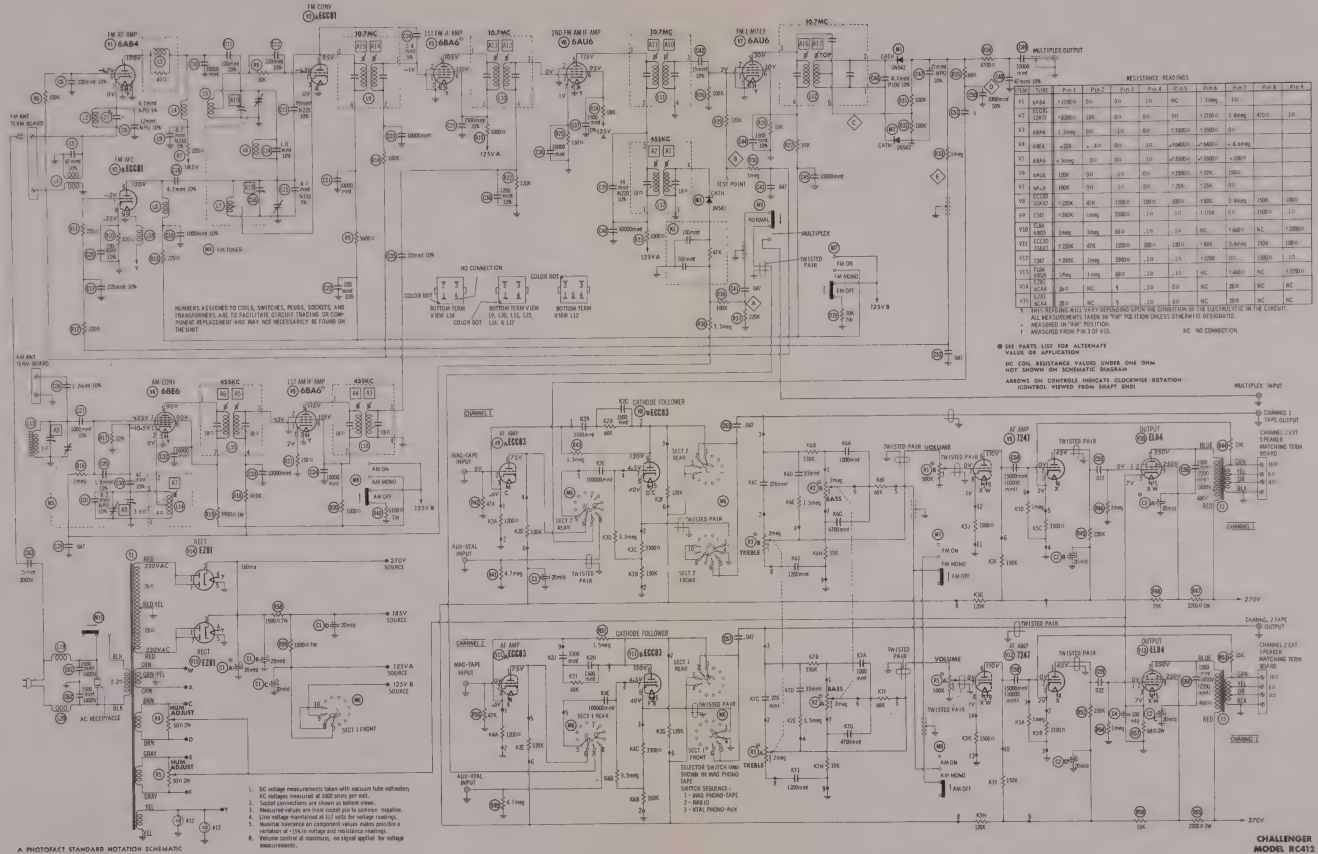
SET 483 FOLDER 4



COMPONENT COMBINATION TERMINALS



CHASSIS TOP VIEW — ALIGNMENT & INDUCTOR IDENT.



RESISTANCE READINGS

TUBE	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AB4	1200Ω	0Ω	0Ω	1Ω	NC	1.5meg	1Ω		
V2	ECC81 12AT7	6800Ω	10K	0Ω	0Ω	0Ω	2700Ω	1.4meg	470Ω	1Ω
V3	6BA6	1.1meg	0Ω	0Ω	1Ω	350Ω	350Ω	0Ω		
V4	6BU6	420K	4Ω	0Ω	1Ω	1040Ω	540Ω	4.5meg		
V5	6BA6	1.5meg	0Ω	0Ω	1Ω	350Ω	350Ω	1MΩ		
V6	6AQ8	120K	0Ω	1Ω	0Ω	350Ω	120K	150Ω		
V7	6AU6	180K	0Ω	1Ω	0Ω	75K	75K	0Ω		
V8	ECC83 12AX7	220K	41K	270Ω	100Ω	100Ω	180K	3.4meg	150K	100Ω
V9	7247	240K	1meg	3300Ω	1Ω	1Ω	170K	0Ω	150Ω	1Ω
V10	6Z81 6BQ5	1meg	1meg	68Ω	1Ω	1Ω	NC	460Ω	NC	220Ω
V11	ECC83 12AX7	220K	47K	1500Ω	300Ω	300Ω	180K	3.4meg	150K	100Ω
V12	7247	240K	1meg	3300Ω	1Ω	1Ω	170K	0Ω	150Ω	1Ω
V13	6Z81 6BQ5	1meg	1meg	68Ω	1Ω	1Ω	NC	460Ω	NC	220Ω
V14	6CA4	2Ω	NC	1	1Ω	0Ω	NC	2Ω	NC	NC
V15	6CA4	2Ω	NC	1	1Ω	0Ω	NC	2Ω	NC	NC

- THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
- ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
- MEASURED IN "AM" POSITION.
† MEASURED FROM PIN 3 OF V15. NC NO CONNECTION.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT

1. DC voltage measurements taken with vacuum tube voltmeter.
2. AC voltages measured at 1000 ohms per volt.
3. Socket connections are shown as bottom views.
4. Measured values are from socket pin to common negative.
5. Line voltage maintained at 117 volts for voltage readings.
6. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
7. Volume control at maximum, no signal applied for voltage measurements.

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ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:

A1 thru A6, A10 thru A13, A16, A17	GENERAL CEMENT #5097, 8727 WALSCO #2515
A7	GENERAL CEMENT #8606, 8606L, 8282, 9295 WALSCO #2526, 2543, 2544, 2545
A8, A9, A19	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A14, A15	GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987 WALSCO #2531
A18	GENERAL CEMENT #8721, 8722 WALSCO #2519

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400~ 30% AM)	(AM) Tuning gang fully open.	DC prove to point (A). Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection.
2.	High side to AM antenna terminal. Low side to chassis.	600KC	600KC	"	A7	"
3.	"	1500KC	1500KC	"	A8, A9	Adjust for maximum deflection. Repeat Steps 2 and 3.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR IN FM POSITION

Short (E) to chassis to defeat AFC.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	High side thru .01 mfd to pin 2 (grid) of FM Converter. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (B). Common to chassis.	A10, A11, A12, A13, A14, A15	Adjust for maximum deflection.
5.	"	"	"	DC probe thru 1meg to point (C). Common to chassis.	A16	"
6.	"	"	"	DC probe to point (D). Common to chassis.	A17	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR IN FM POSITION

Short point (E) to chassis to defeat AFC.

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	High side thru .01mfd to pin 2 (grid) of FM Converter. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point (B). Low side to chassis.	A10, A11, A12, A13, A14, A15	Adjust for maximum gain and symmetry of response similar to Fig. 1.
5.	"	"	"	Vert. amp. thru 27K to point (C). Low side to chassis.	A16	"
6	"	"	"	Vert. amp. to point (D). Low side to chassis.	A17	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A16 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT — SELECTOR IN FM POSITION

Short point (E) to chassis to defeat AFC

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals with 270Ω in high side.	105MC (Unmod.)	(FM) 105MC	DC probe to point (B). Common to chassis.	A18, A19	Adjust for maximum deflection.
8.	"	90MC	90MC	"		Check tracking.

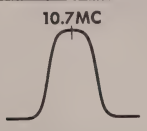


FIG. 1

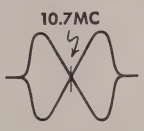
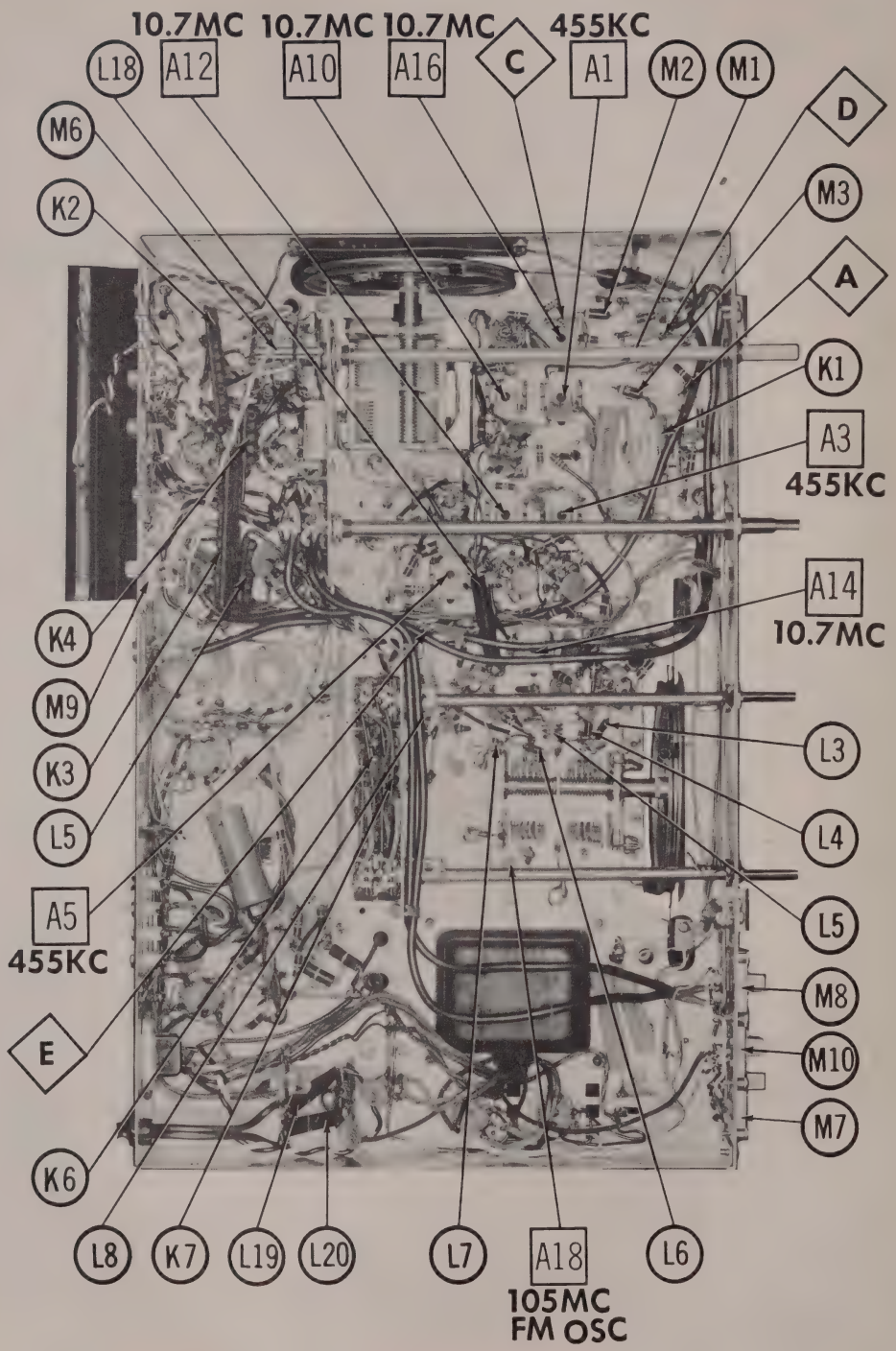
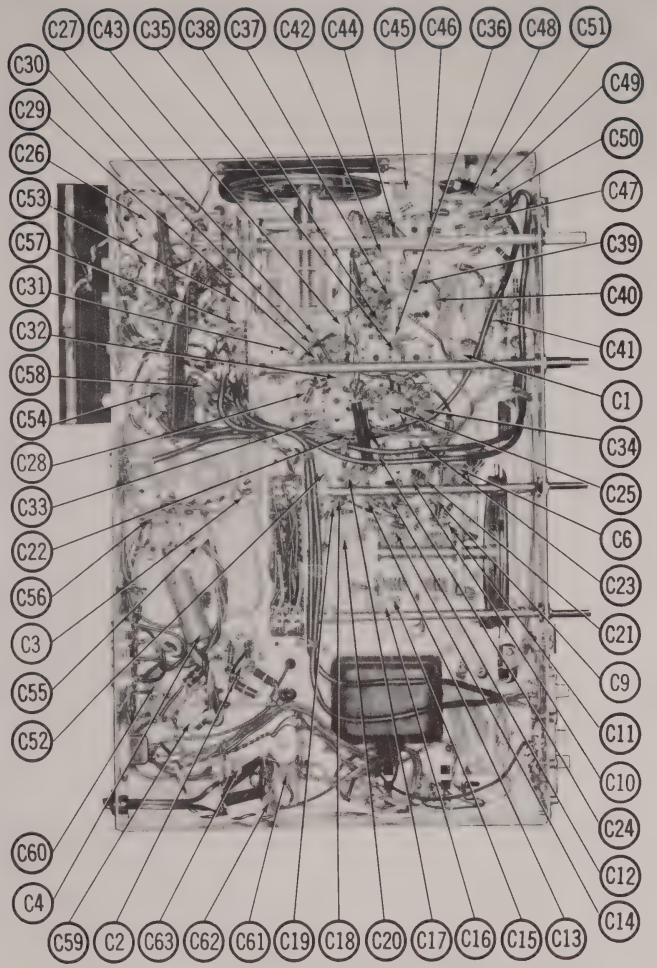


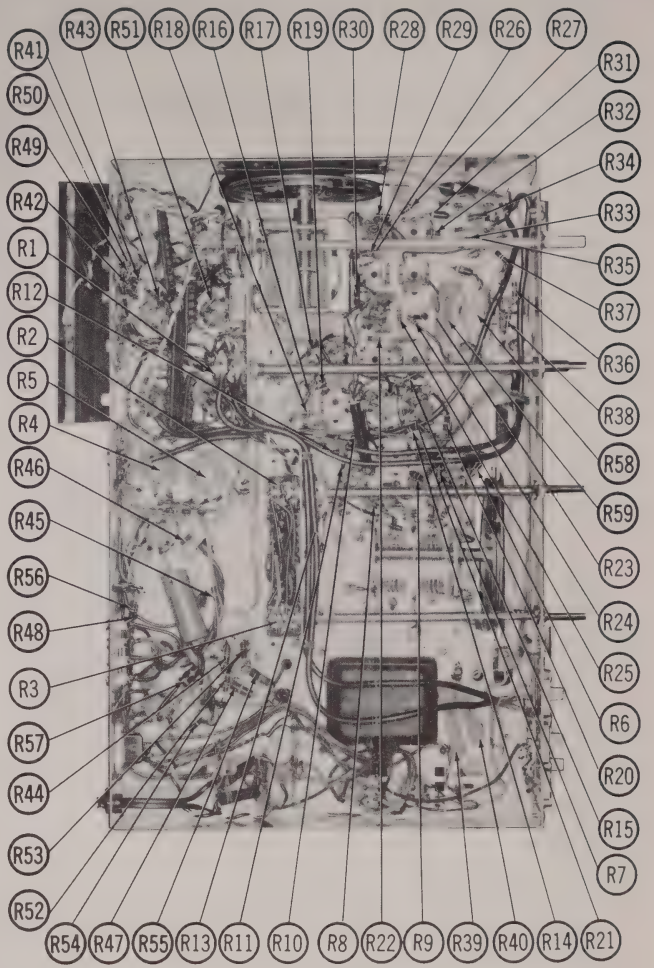
FIG. 2



CHASSIS BOTTOM VIEW – ALIGNMENT, INDUCTOR & MISC. IDENT.



CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amplifier	6AB4	V9	Channel 1 AF Amp.	7247
V2	FM Converter-AFC	ECC81/12AT7	V10	Channel 1 Output	EL84/6BQ5
V3	1st FM IF Amplifier	6BA6 (6BA6/EF93)*	V11	Channel 2 AF Amp. - Cathode Follower	ECC83/12AX7
V4	AM Converter	6BE6			
V5	1st AM IF Amplifier	6BA6 (6BA6/EF93)*	V12	Channel 2 AF Amp.	7247
V6	2nd FM-AM IF Amplifier	6AU6	V13	Channel 2 Output	EL84/6BQ5
V7	FM Limiter	6AU6	V14	Rectifier	EZ81/6CA4
V8	Channel 1 AF Amp. - Cathode Follower	ECC83/12AX7	V15	Rectifier	EZ81/6CA4

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA CHALLENGER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■20	350	79-010-018①		CO270	FP376.5	TMQ-12	TVL-3780	
B	▲20	350			BR2035	TC65		TVA-1608	
C	▲20	350							
D	20	350							
C2A	20	250	79-010-025②		CO270	FP320	TMQ-12	TVL-3532	
B	▲20	250			BR2025	TC55		TVA-1508	
C	■20	250							
D	▲20	250							
C3	20	250	79-010-026	PRS1570	BR2025	TC55	TD-20-250	TVA-1508	
C4	100	25	79-001-049	PRS1270	BBR100-25	TC2501	TD-100-25	TVA-1207	

① In some versions, C1 may be a 250 volt unit (Part #79-010-023).
② Some versions may use Part #79-010-023.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	47 10%		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C6	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C7	4.7 NPO 5%		NPO-DI 4.7	DTZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C8	12 NPO 10%			TCZ-12	C10Q12C	CCTO-120	GP412	10TCC-Q12
C9	4.7 N330 5%					*		
C10	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C11	100 10%		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C12	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C13	39 N220 10%					*		
C14	1.0 10%		NPO-SI 1.0	TCZ-1	C10V15C		CNO-510	10TCC-V10
C15	4.7 N330 5%					*		
C16								

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C17	220 10%		DI-221	DD-221	L10T22	CCD-221	GP322	10TS-T22
C18	4.7 10%		NPO-DI 4.7	DTZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C19	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C20	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C21	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C22	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C24	2.4 5%							
C25	1500 10%		DI-1500	DD-152	PM6D15	CCD-152	GP215	10TS-D15
C26	1.2 10%							10TCC-V12
C27	1000 10%		DI-1000	DD-102	1R5D1	CCD-102	GP210	10TS-D10
C28	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C29	1.8 10%		NPO-SI 2.0					10TCC-V18
C30	47 10%		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C31	8.2 NPO 10%		NPO-DI 8.2		C10V82C			10TCC-V82
C32	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C33	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C34	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C35	22 10%		DI-22	DD-220	L10Q22	CCD-220	GP422	10TS-Q22
C36	1200 10%		DI-1200	DD-122	1R5D12	CCD-122	GP212	10TS-D12
C37	1500 10%		DI-1500	DD-152	PM6D15	CCD-152	GP215	10TS-D15
C38	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C39	39 N220 10%					*		
C40	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C41	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C42	15 10%		DI-15	DD-150	L10Q15	CCD-150	GP415	10TS-Q15
C43	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C44	1500 10%		DI-1500	DD-152	PM6D15	CCD-152	GP215	10TS-D15
C45	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C46	4.7 P100 10%							
C47	27 NPO 10%		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C48	47 10%		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C49	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C50	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C51	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P1
C52	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C53	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C54	15000	(10000) ♦	BPD-015	DD-153	BYA10S15	CCD-153	GP115	5HK-S15
C55	.022 200V		P288N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	2TM-S22
C56	1500 1400V	(2200) ♦	HVD-15-1500	DD30-152	HVB20D15	16DP-1-152	2HV-215	30GA-D15
C57	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C58	15000	(10000)♦	BPD-015	DD-153	BYA10S15	CCD-153	GP115	5HK-S15
C59	.022 200V		P288N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	2TM-S22
C60	1500 1400V	(2200)♦	HVD-15-1500	DD30-152	HVB20D15	16DP-1-152	2HV-215	30GA-D15
C61	1500 1400V		HVD-15-1500	DD30-152	HVB20D15	16DP-1-152	2HV-215	30GA-D15
C62	1500 1400V		HVD-15-1500	DD30-152	HVB20D15	16DP-1-152	2HV-215	30GA-D15
C63	15 2000V		HVD-20-15	DD30-150	HVA20Q15	VCM-20-150M	2DY-415	30GA-Q15

♦ Alternate Value.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CHALLENGER PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K		77-001-480					Volume, Channel 2. Note 1
B	500K							Volume, Channel 1. Note 1
R2A	2meg		77-001-477	AB-75	AD47-2meg-S		FA26L	Bass, Channel 2. Note 2
B	2meg			SR-75	Not Req.		RU26L	Bass, Channel 1. Note 2
C	Shaft			AK-10	RS-3 *		CS3500 *	
R3A	2meg		77-001-477	AB-75	AD47-2meg-S		FA26L	Treble, Channel 2. Note 3
B	2meg			SR-75	Not Req.		RU26L	Treble, Channel 1. Note 3
C	Shaft			AK-10	RS-3 *		CS3500 *	
R4A	50Ω	1WW	77-001-113	WN-500	A43-500	WPK-50	R50L	Hum Adjust, Channel 1.
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	
R5A	50Ω	2WW	77-001-113	WN-500	A43-500	WPK-50	R50L	Hum Adjust, Channel 2.
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	

* Use shaft coupler and part of original shaft.
Note 1. Some versions may use 500K, 500K dual volume (Part #77-001-474).
Note 2. Some versions may use 2meg, 2meg dual bass (Part #77-001-475).
Note 3. Some versions may use 2meg, 2meg dual treble (Part #77-001-475).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R6	100K	
R7	220Ω	
R8	10K	
R9	5600Ω	
R10	470Ω	
R11	220Ω	
R12	220K	
R13	220Ω	
R14	100K	
R15	1000Ω	
R16	1meg	
R17	22K	
R18	470K	
R19	3900Ω 1W	
R20	1000Ω	
R21	150Ω	
R22	120K	
R23	1000Ω	
R24	18K	
R25	150Ω	
R26	100K	
R27	39K	
R28	15K	
R29	120K	
R30	1meg	
R31	100K	
R32	100K	
R33	1meg	
R34	4700Ω	
R35	68K	
R36	100K	
R37	220K	
R38	3.3meg	
R39	10K 7W	
R40	5100Ω 7W	
R41	4.7meg	
R42	47K	
R43	1.5meg	
R44	15K	
R45	220K	
R46	1meg	
R47	2200Ω 1W	
R48	15K	
R49	4.7meg	
R50	47K	
R51	1.5meg	
R52	220K	
R53	15K	
R54	1meg	
R55	2200Ω 1W	
R56	15K	
R57	68Ω 2W	
R58	1500Ω 7W	
R59	1000Ω 7W	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CHALLENGER PART No.	REPLACEMENT DATA
K1	AM Det. RF Filter	100mmf, 100mmf, 47K	78-907-001	Aerovox PA-97 Centralab PC-50 Cornell-Dubilier 111TM1 Sprague D-1
K2	Audio Network	1500mmf, 1500mmf, 3300mmf, 3300mmf, 20K, 68K, 68K, 120K, 120K, 120K	78-912-001	
K3	Audio Network	100000mmf, 1200Ω, 1500Ω, 1500Ω, 3300Ω, 120K, 120K, 150K, 150K, 150K, 3.3meg	78-909-001	
K4	Audio Network	100000mmf, 1200Ω, 3300Ω, 150K, 3.3meg	78-911-001	
K5	Audio Network	10000mmf, 3300Ω, 3300Ω, 1meg, 1meg	78-915-001	
K6	Tone Comp.	33mmf, 270mmf, 1000mmf, 1200mmf, 4700mmf, 33K, 68K, 330K, 1.5meg	78-910-001	
K7	Tone Comp.	33mmf, 270mmf, 1000mmf, 1200mmf, 4700mmf, 33K, 68K, 330K, 1.5meg	78-910-001	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA CHALLENGER PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Trans.	95-5017-01						
L2	RF Choke	95-5016-01						
L3	RF Choke	95-5001-01						Wound on 47Ω
L4	RF Choke	95-5005-02	19-1001	19-1001	BC-562	4604		1.5uh
L5	RF Coil	95-5016-01						
L6	RF Choke	95-5005-02	19-1001	19-1001	BC-562	4604		1.5uh
L7	FM Osc. Coil							
L8	RF Choke	95-5019-01	19-1000	19-1000	BC-561	4602		1uh ①
L9	1st FM IF Trans.	H458	16-3487	16-3487	FM-254	1463		
L10	2nd FM IF Trans.	H355	16-3487	16-3487	FM-254	1463		
L11	3rd FM IF Trans.	H355	16-3487	16-3487	FM-254	1463		
L12	Discriminator	H295	17-3494	17-3494	FM-253	1464		
L13	Loopstick	H694						
L14	AM Osc. Coil	H434	14-1412	14-1412				
L15	1st AM IF Trans.	H297	16-6758	16-6758	BC-352	12-C1	RF-1	
L16	2nd AM IF Trans.	H297	16-6758	16-6758	BC-353	12-C2	RF-2	
L17	3rd AM IF Trans.	H297	16-6758	16-6758	BC-353	12-C2	RF-2	
L18	Fil. Choke	U512						1.9uh
L19	Line Choke	U512						1.9uh
L20	Line Choke	U512						1.9uh

① IRC Part #CLA.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	CHALLENGER PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 1A	460 VCT @ .160A	6.3VCT @ 2.1A	83-615-000						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ .3A	6.3V @ .3A	6.3V @ 4.1A							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	CHALLENGER PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5500Ω	16Ω Tap @ 8Ω, 4Ω	83-297-000	24S92				24S92		
T3	5500Ω	16Ω Tap @ 8Ω, 4Ω	83-297-000	24S92				24S92		

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		CHALLENGER PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M1	1N542		1N636	1N295	1N295	Discriminator } Matched Pair (Pigtail)
M2	1N542		1N636	1N295	1N295	Discriminator }
M3	1N541		1N636	1N295	1N295	AM Detector (Pigtail)

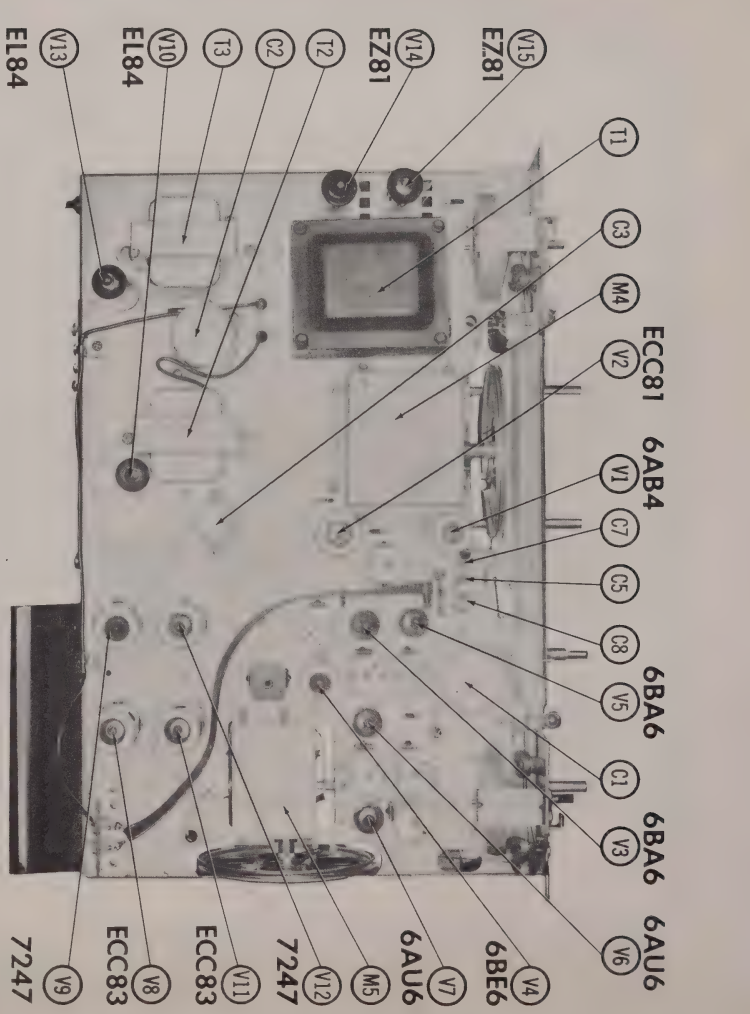
MISCELLANEOUS

ITEM No.	PART NAME	CHALLENGER PART No.	NOTES
M4	FM Tuner		Complete
M5	Tuning Cap		AM, 2 Gang (Ant. 25—548mmf, Osc. 15—160mmf)
M6	Switch	81-001-501	Function Selector (Rotary Wafer Type)
M7	Switch	81-003-001	FM Off, FM Monaural, FM On (DP 3 Position Switch Slide Type)
M8	Switch	81-003-001	AM Off, AM Monaural, AM On (DP 3 Position Switch Slide Type)
M9	Switch	81-003-004	Normal-Multiplex (SPDT Slide Type)
M10	Switch	81-003-004	Off-On (SPDT, Slide Type)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)

CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

CORONADO
MODEL RA50-9902A

CORONADO
MODEL RA50-9902A

CORONADO
MODEL RA50-9902A

TRADE NAME	Coronado Model RA50—9902A
SUPPLIER	Gamble-Skogmo, Inc., 15 N. Third Street, Minneapolis 3, Minn.
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC
RATING	5MA @ 9 Volts DC (No Signal, Min. Volume) 10MA @ 9 Volts DC (Signal, Normal Volume)
TUNING RANGE—BROADCAST	525 — 1670KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools: A1, A2, A3.....GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A4, A6.....GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .05mfd to base of Converter. Low side to chassis.	455KC (400∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	Loop	1670KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1400KC	1400KC	"	A5	"
4.	"	600KC	600KC	"	A6	"
5.	"	525KC	Tuning gang fully closed.	"	A7	Adjust for maximum output. Repeat Steps 2 and 5 until oscillator covers required range. Step 2 should be be performed last. Repeat steps 3 and 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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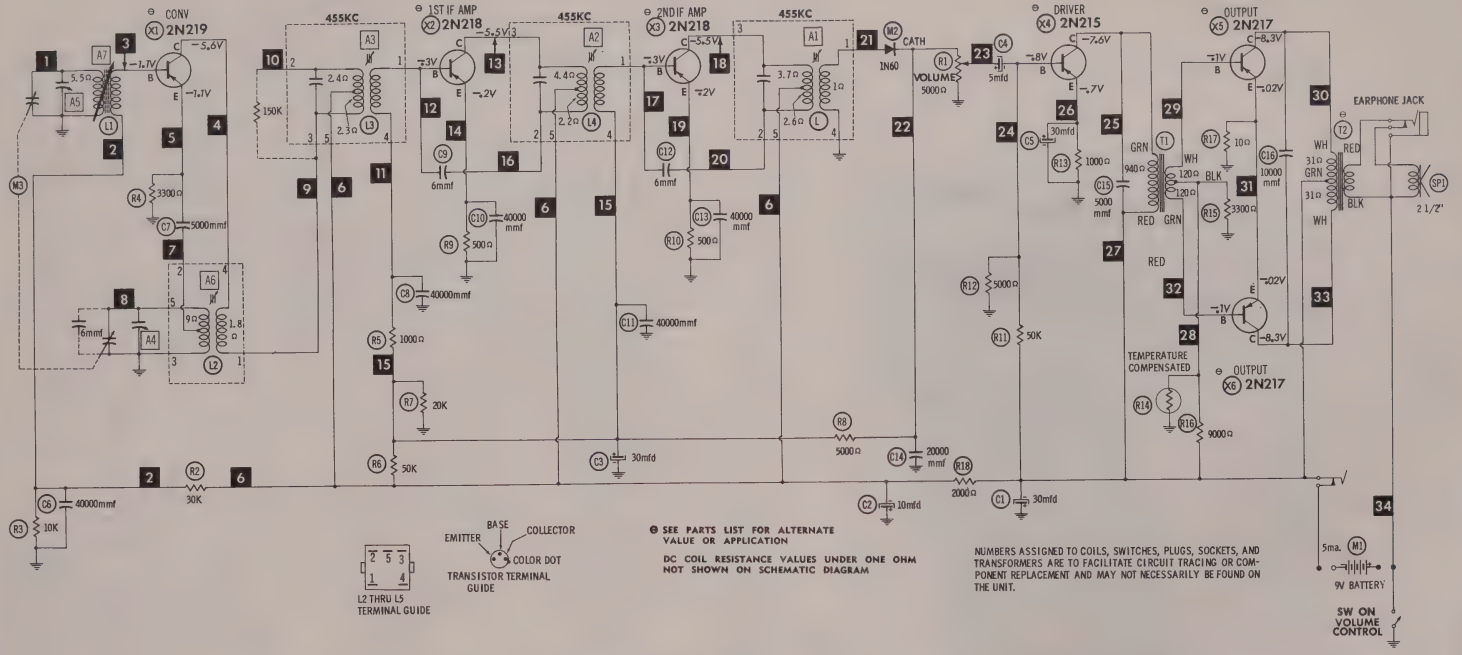
JF702

SET 483 FOLDER 5



RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE™

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CORONADO MODEL RA50-9902A

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N219 *	Converter		2N219	2N486		PNP
X2	2N218 ♦	1st IF Amplifier		2N218	2N483	2N218	PNP
X3	2N218 †	2nd IF Amplifier		2N218	2N483	2N218	PNP
X4	2N215 ‡	Driver		2N215	2N362		PNP
X5	2N217 ▲	Output		2N217	2N631	2N217	PNP
X6	2N217 ▲	Output		2N217	2N631	2N217	PNP

* Type 2S52 may be used in some versions.
♦ Type 2S45 may be used in some versions.
† Type 2S53 may be used in some versions.
‡ Type 2S54 may be used in some versions.
▲ Type 2S56 may be used in some versions.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	CORONADO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	30	10	J-972	XPP-10030	NLW30-15	TT15X30	ML30-15	TE-1158	
C2	10	10	J-974	XPP-10010	NLW10-10	TT12X10	ML10-15	TE-1114	
C3	30	6	J-971	XPP-6030	NLW30-6	TT6X30	ML30-6	TE-1092	
C4	5	6	J-973	XPP-6005	NLW5-6	TT6X5	ML5-6	TE-1084	
C5	30	6	J-971	XPP-6030	NLW30-6	TT6X30	ML30-6	TE-1092	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	40000							
C7	5000		C80V502AM	DDM-502	H-05D5	CCD-502	TA-250	TG-D50
C8	40000							
C9	6	#J-951			C10V6C			
C10	40000							
C11	40000							
C12	6	#J-951			C10V6C			
C13	40000							
C14	20000		C80V203AM	DDM-203	H-05S2		TA-120	TG-S20
C15	5000		C80V502AM	DDM-502	H-05D2	CCD-503	TA-250	TG-D50
C16	10000		C80V103AM	DDM-103	H-05S1		TA-110	TG-S10

Coronado Part Number.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	CORONADO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/4	V-500S					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	30K	
R3	10K	
R4	3300Ω	
R5	1000Ω	
R6	50K	
R7	20K	

ITEM No.	RATING	REMARKS
R8	5000Ω	
R9	500Ω	
R10	500Ω	
R11	50K	
R12	5000Ω	
R13	1000Ω	

ITEM No.	RATING	REMARKS
R14	Temp. Comp.	#M8601
R15	3300Ω	
R16	9000Ω	
R17	10Ω	
R18	2000Ω	

Coronado Part Number.

PRINTED BOARD

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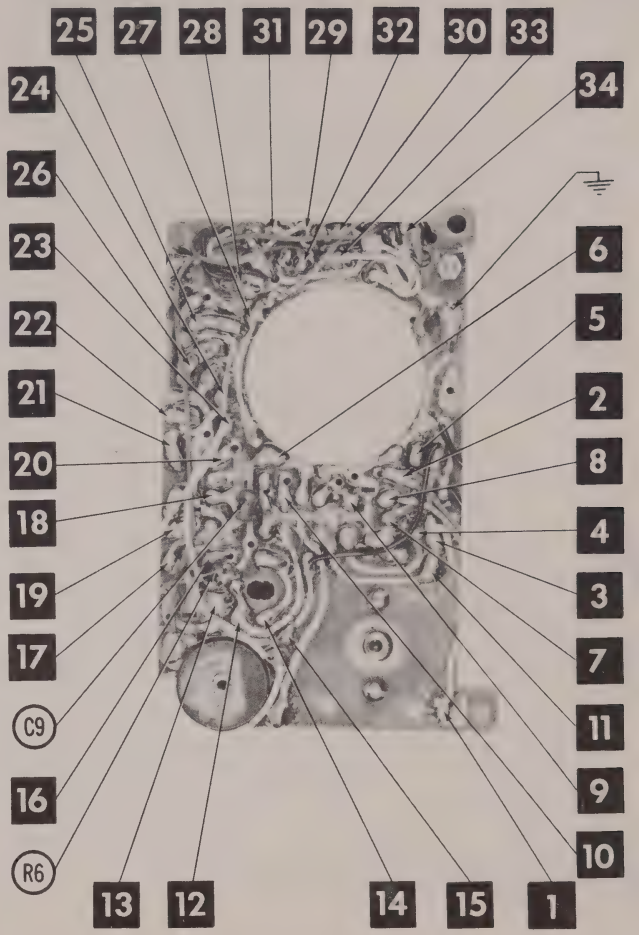


PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		CORONADO PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	LA-502						
L2	Osc. Coil	7030						
L3	1st IF Trans.	8511						
L4	2nd IF Trans.	8503						
L5	3rd IF Trans.	8518						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	CORONADO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.3	1	T-453						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	CORONADO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	2500Ω CT	10-12Ω	OT-503①							

① Alternate Part #OT-501.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	CORONADO PART No.	QUAM PART No.	
SP1	2½"	PM	10-12Ω	PM-224A	25A07	

BATTERIES

ITEM No.	VOLTAGE	CORONADO PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V	17-330		2U6		216		M-1604	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		CORONADO PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N60	1N60	1N60	1N60	1N60	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M3	Tuning Cap.	C-129	2 Gang

CABINETS & CABINET PARTS

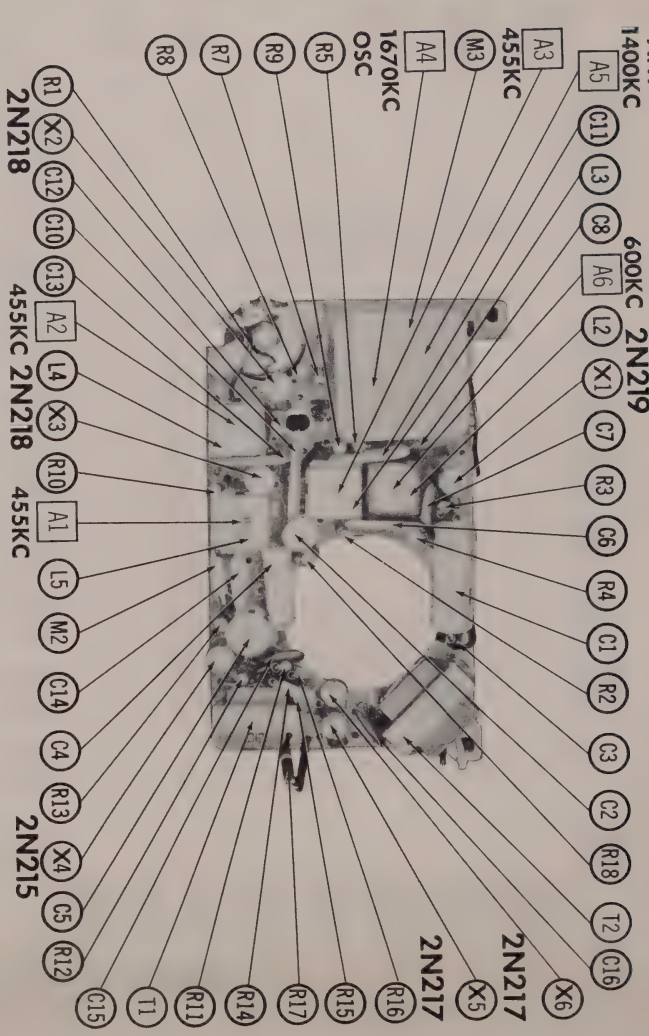
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob Knob Cabinet	K-516EX K-506 J-992	Tuning Volume

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

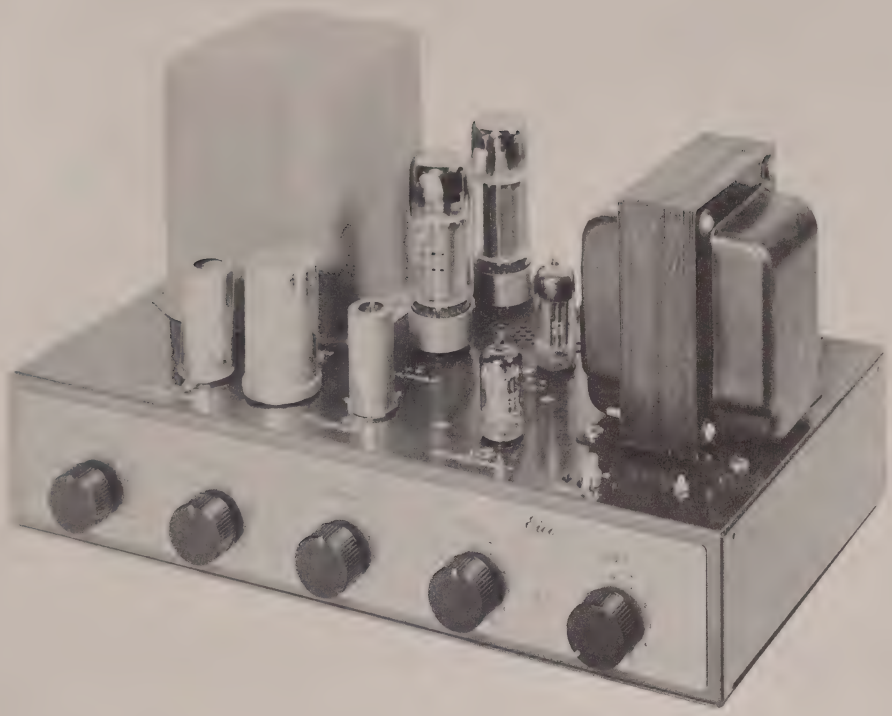
CHASSIS—TOP VIEW



PHOTOFACT® Folder

EICO
MODEL HF-52

EICO
MODEL HF-52



EICO
MODEL HF-52

TRADE NAME	Eico Model HF-52
MANUFACTURER	Electronic Instrument Co., Inc., 33-00 Northern Blvd., Long Island City 1, N. Y.
TYPE SET	AC Operated 7 Tube Audio Amplifier
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 150 Watts, 1.45 Amp. @ 117 Volts AC

ADJUSTMENTS

BIAS ADJUSTMENT

Connect DC probe of VTVM to point A Common to chassis. Adjust Bias (R6) for -47 volts on VTVM.

BALANCE ADJUSTMENT

Connect VTVM across meter jacks on rear apron. Use lowest DC scale. Adjust Balance (R5) for zero or MINIMUM deflection.

FINAL BIAS ADJUSTMENT

Connect DC probe of VTVM to either meter jack. Common to chassis. Adjust Bias (R6) for . 65 volts.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of JX632

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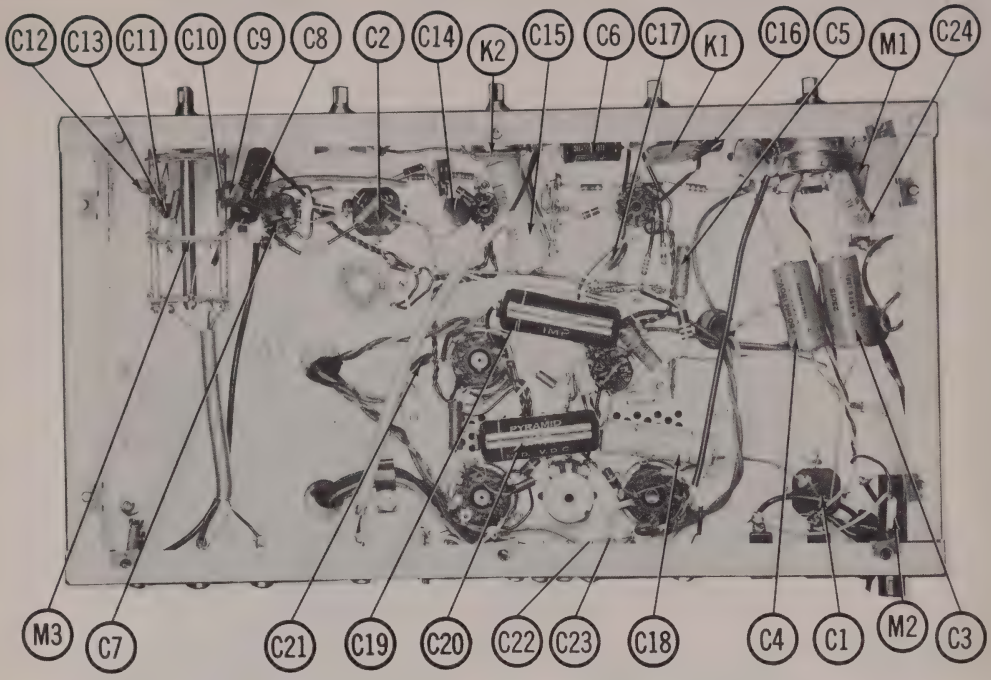
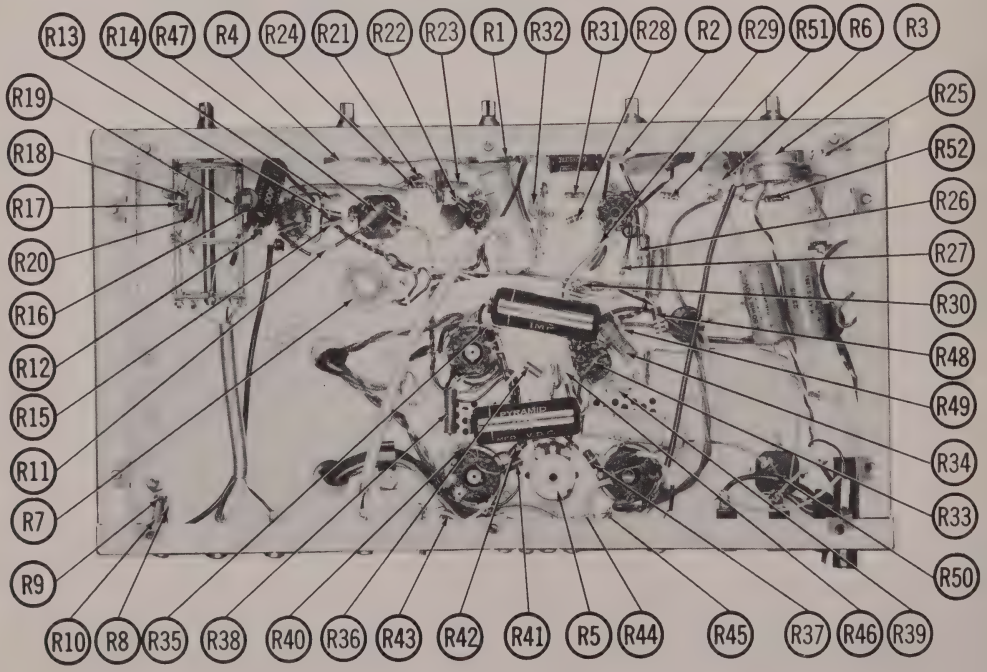


CHASSIS BOTTOM VIEW - CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW - RESISTOR IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Phono Preamplifier	ECC83 (12AX7) *	V5	Output	EL34 (6CA7) *
V2	AF Amplifier	EC90 (6C4) *	V6	Output	EL34 (6CA7) *
V3	AF Amplifier	ECC83 (12AX7) *	V7	Rectifier	GZ34 (5AR4) *
V4	AF Amp. - Phase Inverter	6CG7			

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA EICO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	500	①	AFH2-71-90	B0510	FP284	TMT-47	TVL-2939	
B	▲25	500				TC22			
C2A	■20	450	24003	AFH4-90	D0130	FP474.5	TMQ-12	TVL-4763	
B	▲20	450							
C	▲10	350							
D	10	350							
C3	50	150	23015	PRS1480	BR5015	TC49	TD-50-150	TVA-1414	
C4	50	150	23015	PRS1480	BR5015	TC49	TD-50-150	TVA-1414	
C5	10	25	23001	XPP-25010	NLW10-25	TC22	ML10-25	TE-1204	
C6	50	25	23007	SRE25V50	BBR50-25	TC29	TD-50-25	TE-1209	

① Alternate 20mfd @ 500V, 40mfd @ 500V may be used in some versions (Part #24008).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	10000				BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C8	.1	400V			P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C9	850		10%		DI-820	DD-821		CCD-821	GP382	10TS-T82
C10	3300		10%		DI-3300		PM6D33	CCD-332	JL233	10TS-D33
C11	5000		10%		DI-5000		PM6D5	CCD-502	JL250	10TS-D50
C12	500		10%		DI-500	DD-501	PM6T5	CCD-501	GP350	10TS-T50
C13	2700		10%		DI-2700		PM6D3	CCD-272	GEM-1623	10TS-D27
C14	25000									5HK-S25
C15	.25	400V	10%		V84C4P25-10%		PM4P25	4DP-5-254	GEM-4025	4TM-P25
C16	.1	400V	10%		V84C4P1 - 10%		PM4P1	4DP-3-104		4TM-P1
C17	100	N220	5%					*		10TCR-T10
C18	.25	400V			P488N-25		CUB4P25	4DP-5-254	GEM-4025	4TM-P25
C19	.25	600V	10%		V84C6P25-10%		PM6P25	6DP-5-254	GEM-6025	6TM-P25
C20	.25	600V	10%		V84C6P25-10%		PM6P25	6DP-5-254	GEM-6025	6TM-P25
C21	750	1000V	10%		DI-750	DD-751		CCD-751	GP375	10TS-T75
C22	500		10%		DI-500	DD-501	5R5T5	CCD-501	GP350	10TS-T50
C23	225		10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C24	.03	600V			P688N-03	DD-303	CUB6S3	6DP-3-303	GEM-613	6TM-S3

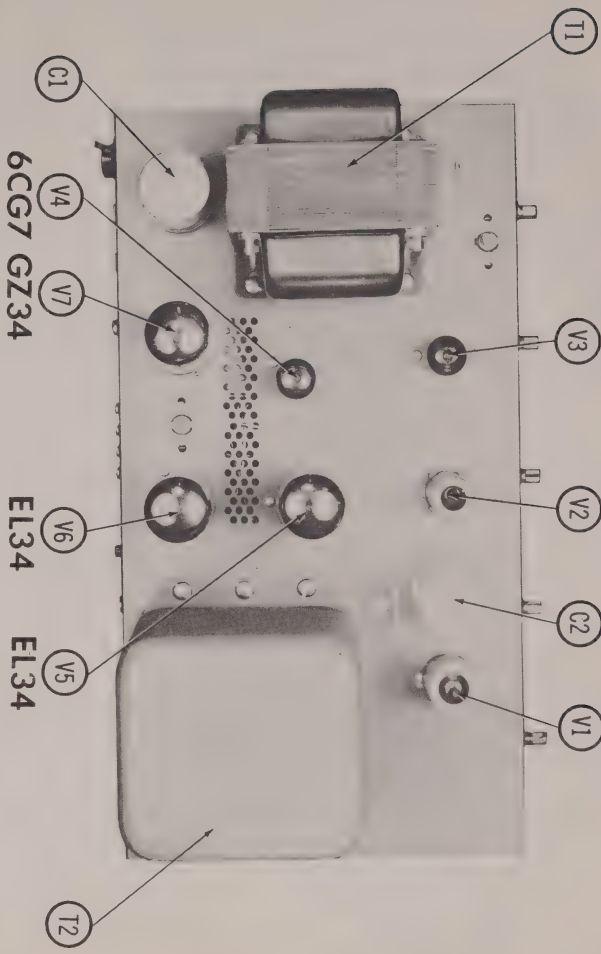
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA EICO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K *	½	18021	C1-60 †		B20-133XX	UDT-283	Loudness
B	Shaft			Not Req.		SK1	Not Req.	
R2A	1meg	½	18020	B-69	A47-1meg-S	Q11-137	U54	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	500K	½	18008	BT-65	A47F5-500K	Q19-133X	UT-431	Treble
	250K tap							
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power Off-On
R4A	100K	½	18031	B-41	A47-100K-Z	Q13-128	U39	Level
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R5	50K	½	18029	BX-31	B47-50K-S	Q11-123	PTA54L	Balance Adjust
R6A	10K	½	18015	AB-14	B47-10K-S	Q11-116	U30	Bias Adjust
B	Shaft			AK-1	Not Req.	Not Req.	Not Req.	
R7A	100Ω	2(WW)	19009	WN-101	A43-100	W11-084	R100L	Hum Adjust
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	

* Taps @ 150K, 300K. † Includes K2.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R8	68K	
R9	120K	
R10	68K	
R11	200K 5%	
R12	1800Ω	
R13	2.2meg	
R14	200K 5%	
R15	2200Ω	
R16	90K 5%	
R17	100K 5%	
R18	4.7meg 5%	
R19	560K 5%	
R20	2.2meg 5%	
R21	2.2meg	
R22	1meg	

ITEM No.	RATING	REMARKS
R23	2200Ω	
R24	47K	
R25	100K	
R26	100K	
R27	3300Ω	
R28	4700Ω	
R29	220K	
R30	3300Ω	
R31	1000Ω	
R32	100Ω 5%	
R33	1meg	
R34	28.75K 5% 1W	
R35	1000Ω	
R36	180K 5%	
R37	100K 5%	

ITEM No.	RATING	REMARKS
R38	10Ω 1% 1W	
R39	33K 5%	
R40	1000Ω	
R41	180K 5%	
R42	100K 5%	
R43	10Ω 1% 1W	
R44	3000Ω 5%	
R45	3000Ω 5%	
R46	18K 5% 1W	
R47	68K	
R48	33K 1W	
R49	150K	
R50	15K 1W	
R51	33K	
R52	22K	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	EICO PART No.	REPLACEMENT DATA
K1	Tone Compensator	330mmf, 4700mmf, 4700mmf, 1000Ω, 100K, 100K, 120K	29751	Sprague TC-24
K2	Loudness Compensator	100mmf, 200mmf, 4500mmf, 4500mmf, 50K, 50K	(Part of R1)	Aerovox PA-682 Centralab PC-324 Sprague TC-4

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	EICO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	125V ② 1.15A Tap ②117V ② 1.45A	780VCT ② .140A Tap ② 75V ② .005A	5V ② 1.9A	30020	24R38 ①			P-4004 ①	24R38 ①	
	SEC. 3	SEC. 4	SEC. 5							
	6.3V ② 4.2A									

① Parallel and phase 6.3V Filament Windings. Tape and ignore 2.5V and center tap on 5V and 6.3V Windings.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	EICO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4500Ω CT Screen Tap ② 800Ω CT	16Ω Tap ② 8Ω, 4Ω	32007							

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	EICO PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.005A	93003 *	RS050 *	1234AH *	50 *		* Selenium Type

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			EICO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	3A 250V	91005	97800	312003 (3AG 3A 250V)	342001	AGC 3	HKP

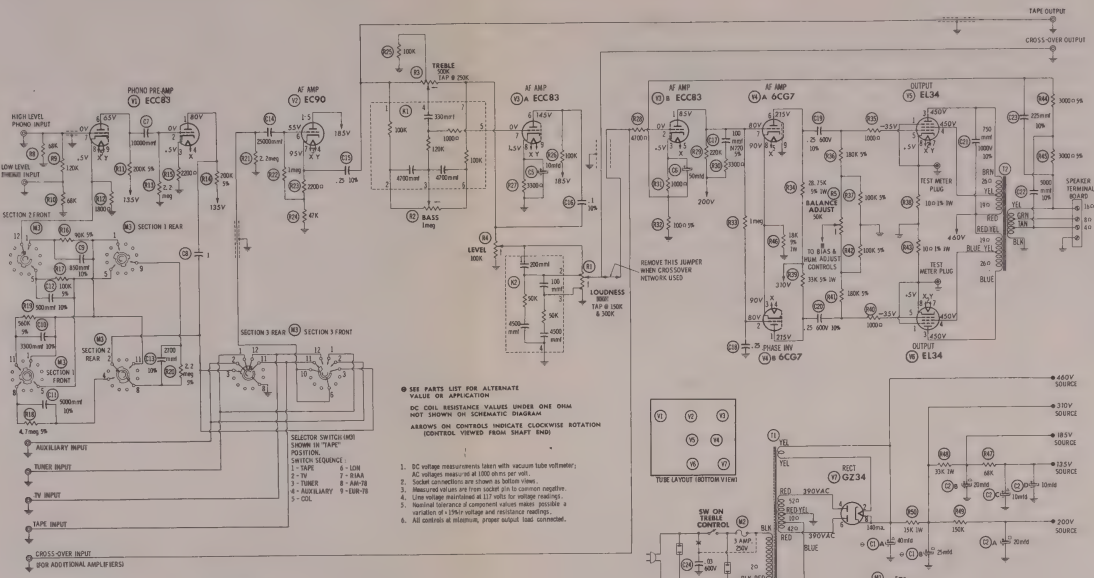
MISCELLANEOUS

ITEM No.	PART NAME	EICO PART No.	NOTES
M3	Switch	60038	Selector (Rotary Wafer Type)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±5% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83	↑315K	2.2meg	2200Ω	25K	25K	↑315K	55K	1800Ω	25K
V2	EC90	↑48K	NC	25K	25K	↑48K	1meg	49K		
V3	ECC83	↑385K	470Ω	1100Ω	25K	25K	↑148K	270K	330Ω	25K
V4	6CG7	↑48K	↑1.3meg	18K	∥∥∥	25K	↑44K	↑385K	18K	NC
V5	EL34	10Ω	25K	↑45Ω	↑19Ω	220K	TP	25K	10Ω	
V6	EL34	10Ω	25K	↑45Ω	↑19Ω	220K	TP	25K	10Ω	
V7	GZ34	NC	¶	TP	52Ω	NC	52Ω	NC	¶	

↑ MEASURED FROM PIN 8 OF V7.
NC NO CONNECTION
TP TIE POINT

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EICO
MODEL HF-52

PHOTOFACT® Folder with CIRCUITRACE®

GENERAL ELECTRIC MODELS T155A, T156A

GENERAL ELECTRIC
MODELS T155A, T156A

MODEL T155A

GENERAL ELECTRIC
MODELS T155A, T156A

TRADE NAME	General Electric Models T155A, T156A
MANUFACTURER	General Electric Co., Product Service, Radio Receiver Dept., 869 Broad Street, Utica, N. Y.
TYPE SET	AC-DC Operated 6 Tube AM Receiver
POWER SUPPLY	105-120 Volts AC, 60 Cycles
RATING	26 Watts, .26 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	535 – 1620KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:
A1 thru A4, A8..... GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544
A5, A6, A7..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	455KC (400∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1500KC	Tune to 1500KC signal.	"	A6, A7	Adjust for maximum output while rocking tuning gang.
4.	"	600KC	Tune to 600KC signal.	"	A8	"

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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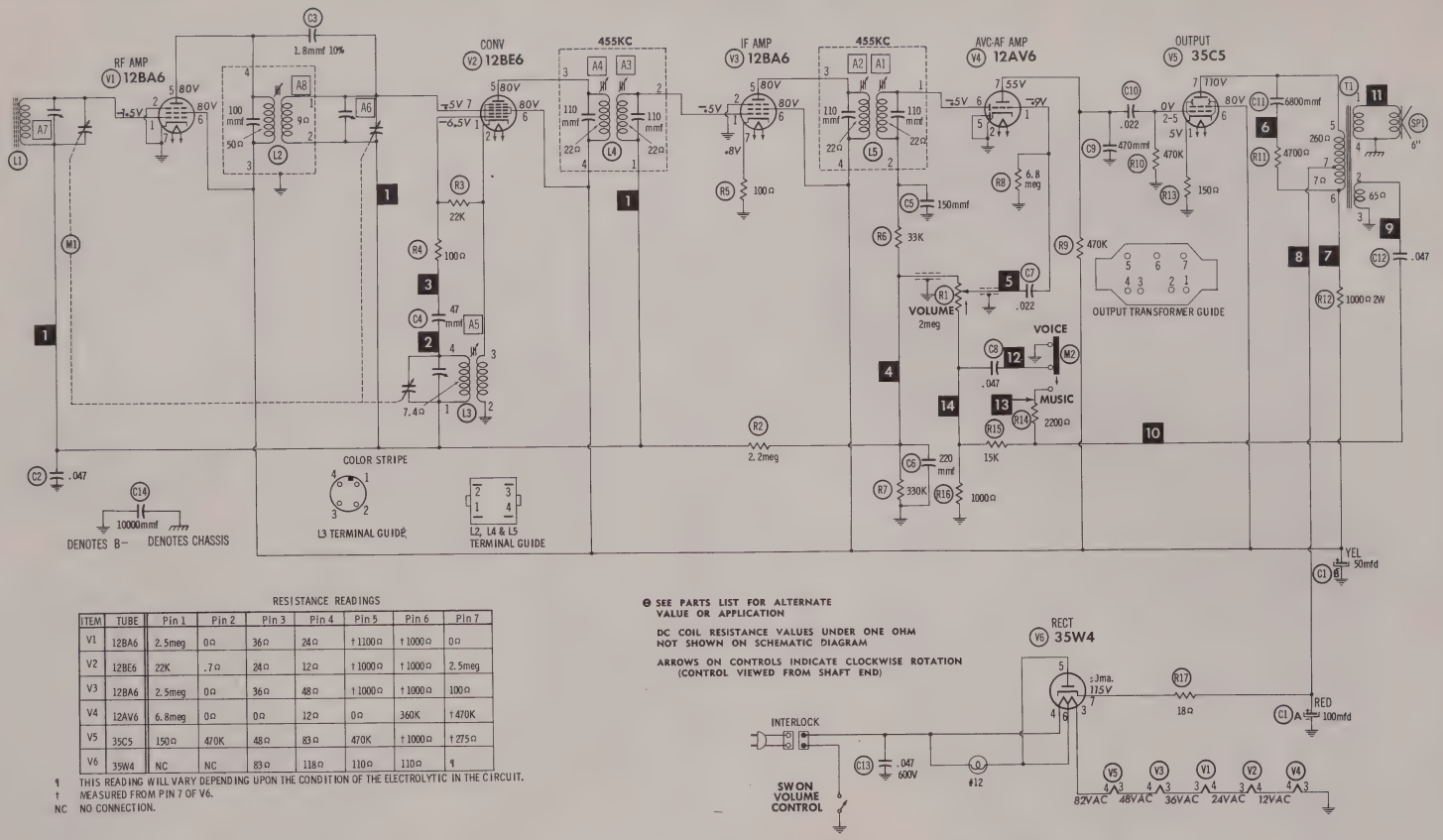
JG667

SET 483 FOLDER 7



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BA6	2.5meg	0Ω	36Ω	24Ω	†1100Ω	†1000Ω	0Ω
V2	12BE6	22K	.7Ω	24Ω	12Ω	†1000Ω	†1000Ω	2.5meg
V3	12BA6	2.5meg	0Ω	36Ω	48Ω	†1000Ω	†1000Ω	100Ω
V4	12AV6	6.8meg	0Ω	0Ω	12Ω	0Ω	360K	†470K
V5	35C5	150Ω	470K	48Ω	83Ω	470K	†1000Ω	†275Ω
V6	35W4	NC	NC	83Ω	118Ω	110Ω	110Ω	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V6.
NC NO CONNECTION.

❸ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE®

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GENERAL ELECTRIC
MODELS T155A, T156A

PARTS LIST AND DESCRIPTIONS

TUBES

• CBS • GENERAL ELECTRIC •			• RAYTHEON • SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12BA6	V4	Det. -AVC-AF Amp.	12AV6
V2	Converter	12BE6	V5	Output	35C5
V3	IF Amplifier	12BA6	V6	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	G. E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	100	150	RS-1134	PRS2240	BBRD0183.7	WD235	TDLD-14	TVA-2464	
B	50	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C3	1.8 10%		NPO-S1 2.0		C10V2C			10TCC-V18
C4	47		D1-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C5	150		D1-150	DD-151	L10T15	CCD-151	GP315	10TS-T15
C6	220		D1-220	DD-220	L10T22	CCD-221	GP322	10TS-T22
C7	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C8	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C9	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C10	.022 200V		P288N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C11	6800		D1-6800	DD-682	BYA10D68	CCD-682	GP268	5HK-D68
C12	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C13	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C14	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	G. E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg	½	RS-2066			B13-139	PP26A	Volume
B	Switch					SK7	Not Req.	Push-Pull Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	2.2meg	
R3	22K	
R4	100Ω	
R5	100Ω	
R6	33K	
R7	330K	

ITEM No.	RATING	REMARKS
R8	6.8meg	
R9	470K	
R10	470K	
R11	4700Ω	
R12	1000Ω 2W	
R13	150Ω	

ITEM No.	RATING	REMARKS
R14	2200Ω	
R15	15K	
R16	1000Ω	
R17	18Ω	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		G. E. PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	RS-2121			BC-418			
L2	RF Trans.	RS-1145						
L3	Osc. Coil	RS-1142						
L4	Input IF Trans.	RS-1143	16-6780	16-6780	BC-356	13-PC9	RF-4	
L5	Output IF Trans.	RS-1143	16-6780	16-6780	BC-357	13-PC10	RF-4	

PRINTED BOARD

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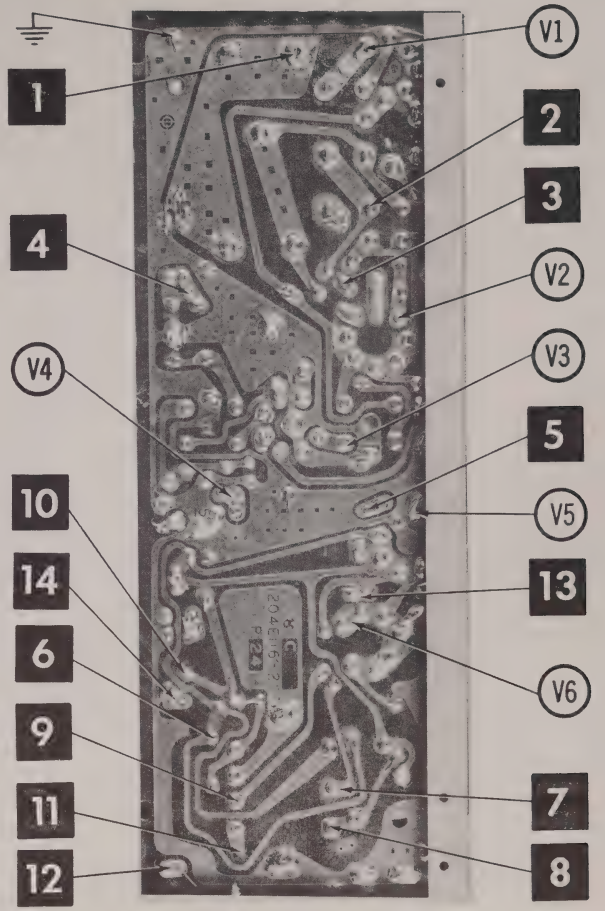
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA G. E. PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	4200Ω Tap @ 2.6%	260Ω	RS-2077							
		SEC. 2 3-4Ω								

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA G. E. PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	6"	PM	3-4Ω	RB-1054	6A15	

MISCELLANEOUS

ITEM No.	PART NAME	G. E. PART No.	NOTES
M1	Tuning Cap.	RS-2078	3 Gang
M2	Switch	RS-1221	Tone (SPDT, Slide Type)
	Tuning Shaft Ass'y.	RS-2075	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

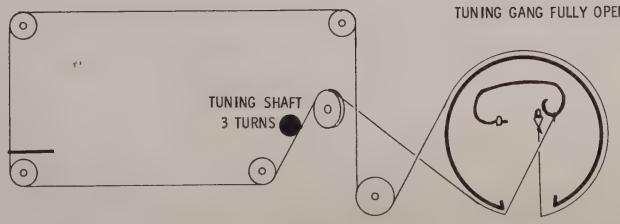
NAME	PART NO.	DESCRIPTION
Knob	RS-2070	Tuning, Volume (With Inserts)
Pointer	RS-2072	
Crystal	RS-2073	
Cabinet	RB-1113	Model T155A
Cabinet	RB-1124	Model T156A

WIRING DATA

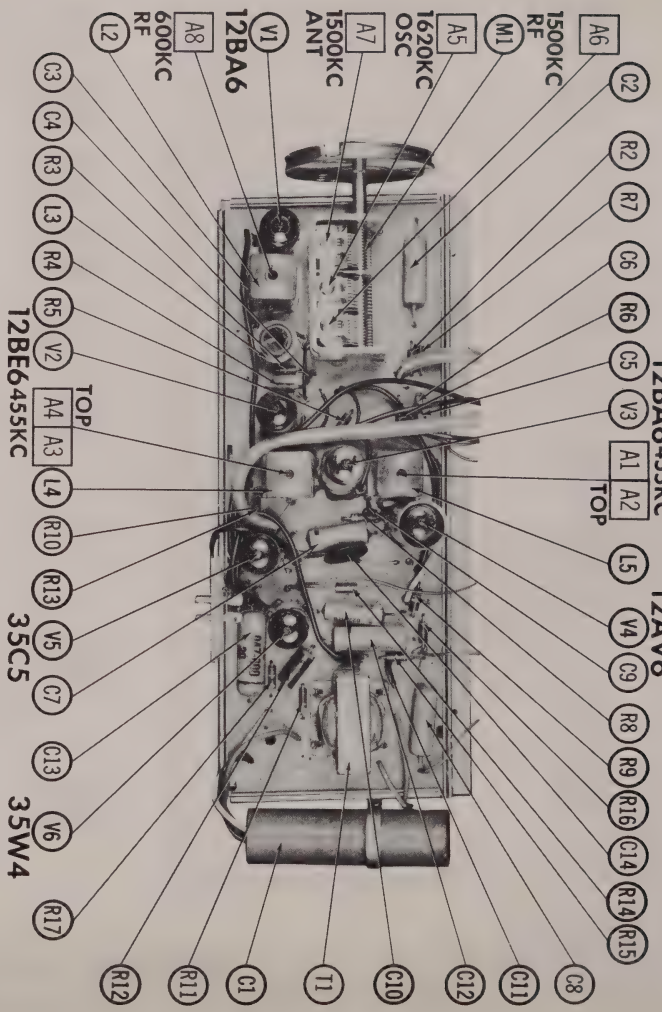
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874

DIAL CORD STRINGING



CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

HITACHI
MODEL TH-667

HITACHI
MODEL TH-667

HITACHI
MODEL TH-667

TRADE NAME	Hitachi Model TH-667
SUPPLIER	Electronic Utilities Co., Div. of the Sampson Co., 2244 S. Western Ave., Chicago 8, Illinois
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	6 Volts DC
RATING	4MA @ 6 Volts DC (No Signal, Min. Volume) 15MA @ 6 Volts DC (Signal, Normal Volume)
TUNING RANGE—BROADCAST	535-1605KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Suggested Alignment Tools: GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400% Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	1400KC	Tune to 1400KC signal	"	A5	"
4.	"	600KC	Tune to 600KC signal	"	A6	Adjust for maximum output while rocking tuning gang.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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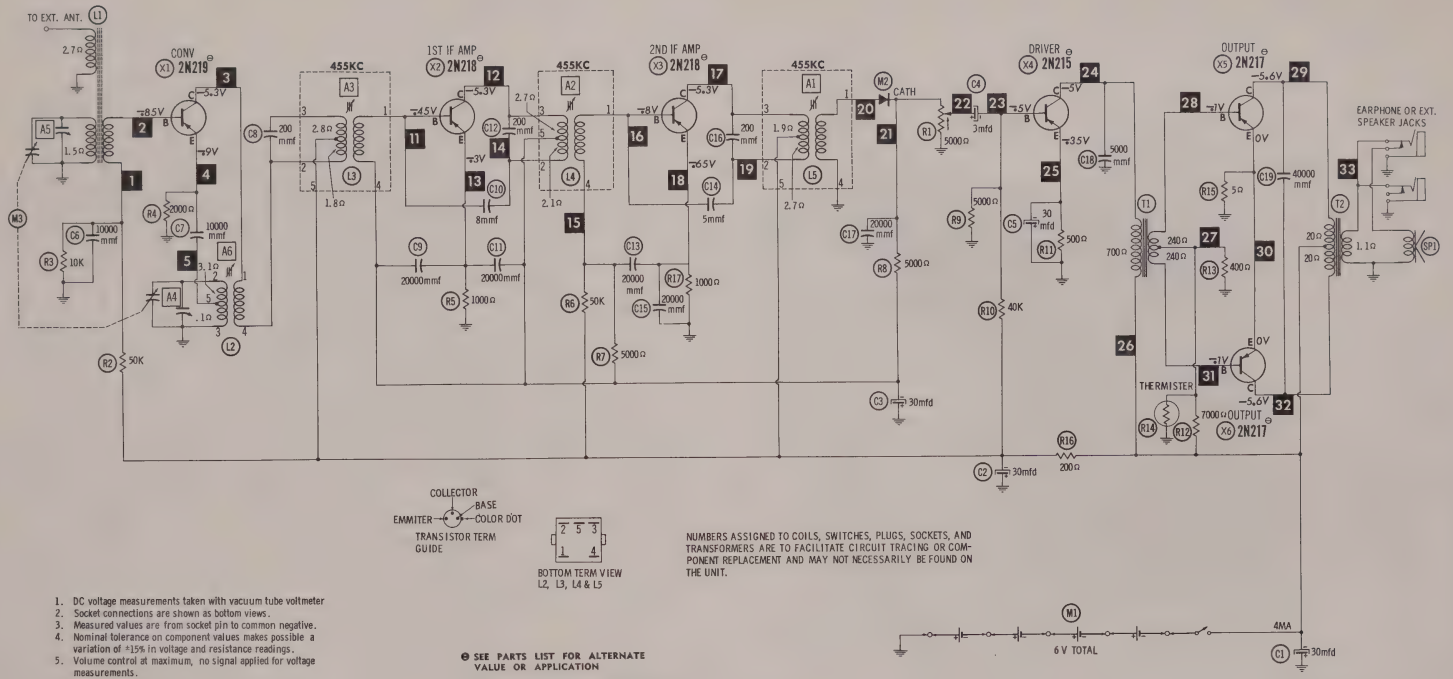
SET 483 FOLDER 8



1. DC voltage measurements taken with vacuum tube voltmeter
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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HITACHI
MODEL TH-667

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N219 ①	Converter		2N219	2N486		PNP
X2	2N218 ②	1st IF Amp.		2N218	2N482	2N218	PNP
X3	2N218 ②	2nd IF Amp.		2N218	2N482	2N218	PNP
X4	2N215 ③	Driver		2N215	2N362		PNP
X5	2N217 ④	Output		2N217	2N633	2N217	PNP } Matched Pair
X6	2N217 ④	Output		2N217	2N633	2N217	PNP }

① Some versions may use a Type HJ23 in this application.
② Some versions may use a Type HJ22 in this application.
③ Some versions may use a Type HJ15 in this application.
④ Some versions may use a Type HJ17 in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	HITACHI PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	30	6		PWE6030	EC30-6	TT6X30	ML30-6	TE-1092	
C2	30	6		PWE6030	EC30-6	TT6X30	ML30-6	TE-1092	
C3	30	6		PWE6030	EC30-6	TT6X30	ML30-6	TE-1092	
C4	3	6		XPP-6003	NLW3-6	TT6X3	ML4-6	TE-1082	
C5	30	6		PWE6030	EC30-6	TT6X30	ML30-6	TE-1092	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C8	200		SI 200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C9	20000		C80V203AM	DD-203	BYB6S2	CCD-203	TA-120	5HK-S20
C10	8		NPO-SI 8.2	DD-080	L10V8		GP580	10TS-V80
C11	20000		C80V203AM	DD-203	BYB6S2	CCD-203	TA-120	5HK-S20
C12	200		SI 200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C13	20000		C80V203AM	DD-203	BYB6S2	CCD-203	TA-120	5HK-S20
C14	5		NPO-SI 5.0	DD-050	L10V5	CCD-050	GP550	10TS-V50
C15	20000		C80V203AM	DD-203	BYB6S2	CCD-203	TA-120	5HK-S20
C16	200		SI 200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C17	20000		C80V203AM	DD-203	BYB6S2	CCD-203	TA-120	5HK-S20
C18	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C19	40000			DD-403	BYB6S4			5HK-S40

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	HITACHI PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	½						Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	50K	
R3	10K	
R4	2000Ω	
R5	1000Ω	
R6	50K	
R7	5000Ω	

ITEM No.	RATING	REMARKS
R8	5000Ω	
R9	5000Ω	
R10	40K	
R11	500Ω	
R12	7000Ω	
R13	400Ω	

ITEM No.	RATING	REMARKS
R14	TEMP. COMP.	
R15	5Ω	
R16	200Ω	
R17	1000Ω	

PRINTED BOARD

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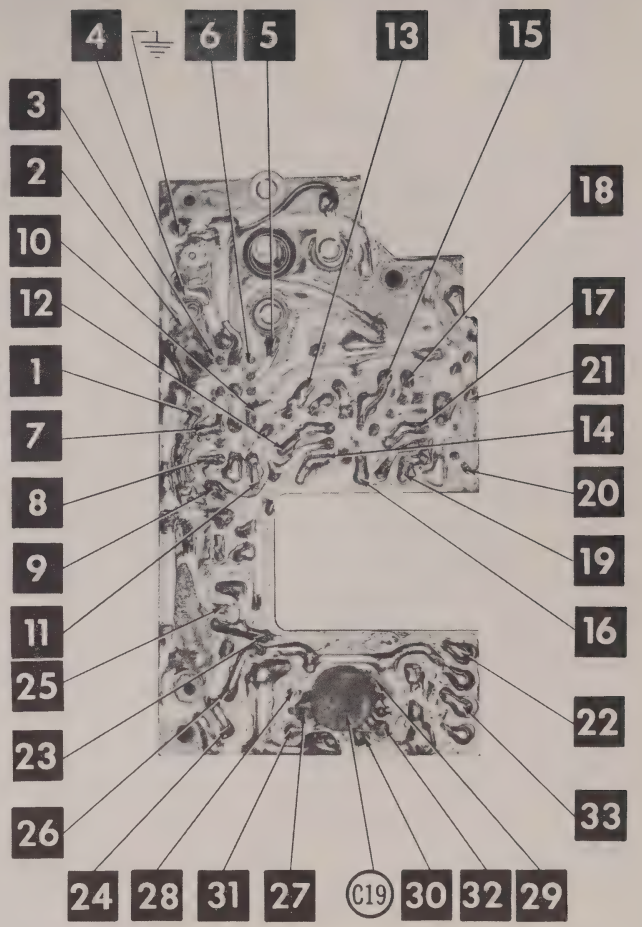


PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		HITACHI PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick							
L2	Osc. Coil							
L3	1st IF Trans.							
L4	2nd IF Trans.							
L5	3rd IF Trans.							

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	HITACHI PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1	1	CT-63						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	HITACHI PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	250Ω	10-12Ω	OT-67				TA-20			

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	HITACHI PART No.	QUAM PART No.	
SP1	3½"	PM	10-12Ω		3A07Z11.3	

BATTERIES

ITEM No.	VOLTAGE	HITACHI PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V			130		635		M-14R	4 Required

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		HITACHI PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2			1N60	1N60	1N60	Detector (Pigtail)

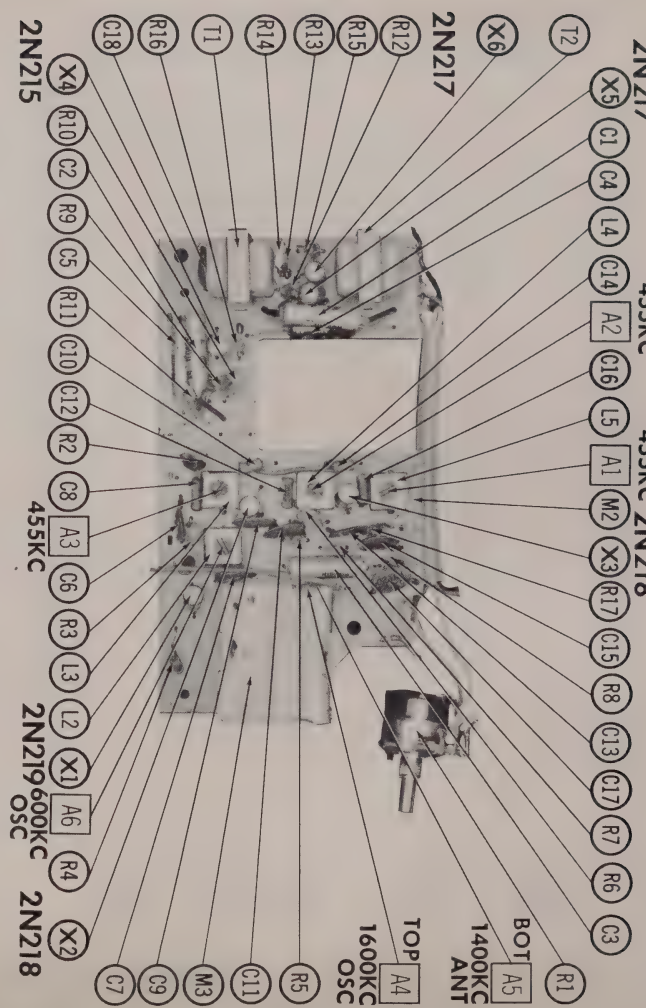
MISCELLANEOUS

ITEM No.	PART NAME	HITACHI PART No.	NOTES
M3	Tuning Cap.		2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



PHOTOFACT® Folder

HOFFMAN MODELS B807, M807, SP807, W807, B8006, M8006, SP8006, W8006 (Ch. 1120, 1129)

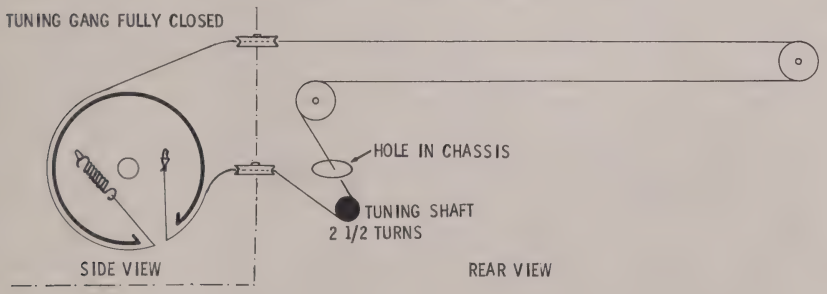
HOFFMAN MODELS B807, M807, SP807, W807, B8006, M8006, SP8006, W8006 (Ch. 1120, 1129)

MODEL SP8006

TRADE NAME	Hoffman Models B807, M807, SP807, W807 (Amp. Ch. 1129); B8006, M8006, SP8006, W8006 (Tuner Ch. 1120, Amp. Ch. 1129)		
MANUFACTURER	Hoffman Electronics Corp., Consumer Products Div., 6200 S. Avalon Blvd., Los Angeles 3, Calif.		
TYPE SET	AC Operated 9 Tube FM-AM Tuner, 5 Tube Stereo Amplifier and 4 Speed Automatic Record Changer		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	67 Watts, .66 Amp. @ 117 Volts AC (Amp.) 52 Watts, .51 Amp. @ 117 Volts AC (Tuner)
TUNING RANGE	BROADCAST 535-1620KC	FREQ. MOD.	88-108MC

FOR SERVICE INFORMATION ON RECORD CHANGER PART #990006 USED IN 8006 SERIES - SEE SIMILAR GARRARD RC121 MKII - PHOTOFACT SET 421 FOLDER 7. RECORD CHANGER PART #990008 USED IN 807 SERIES.

DIAL CORD STRINGING



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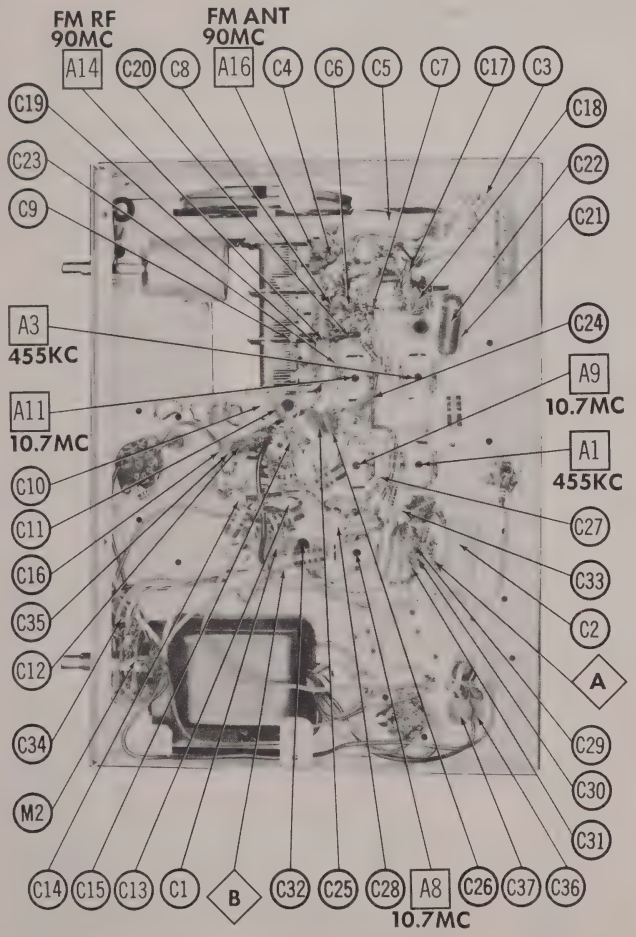
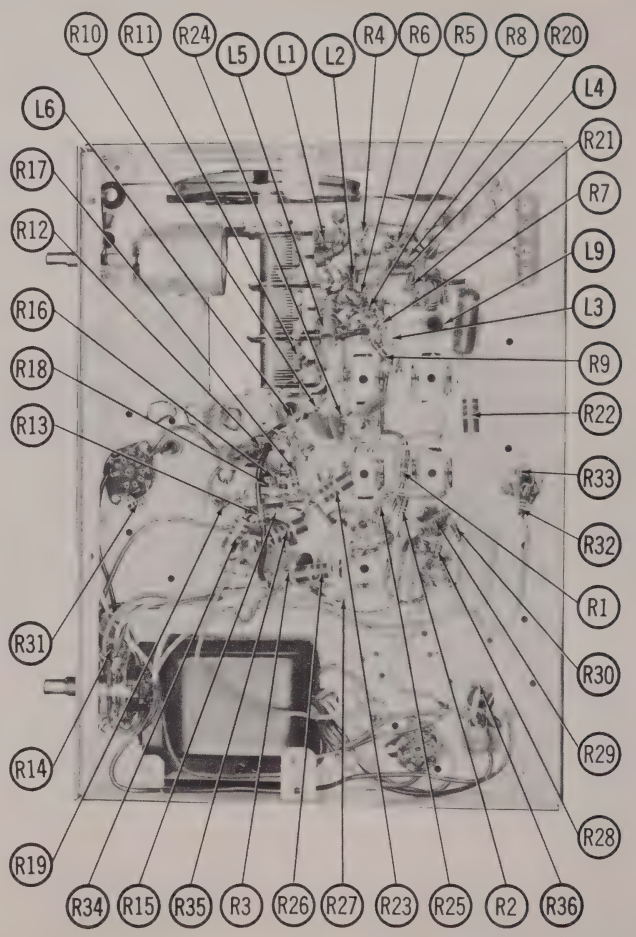
JN692

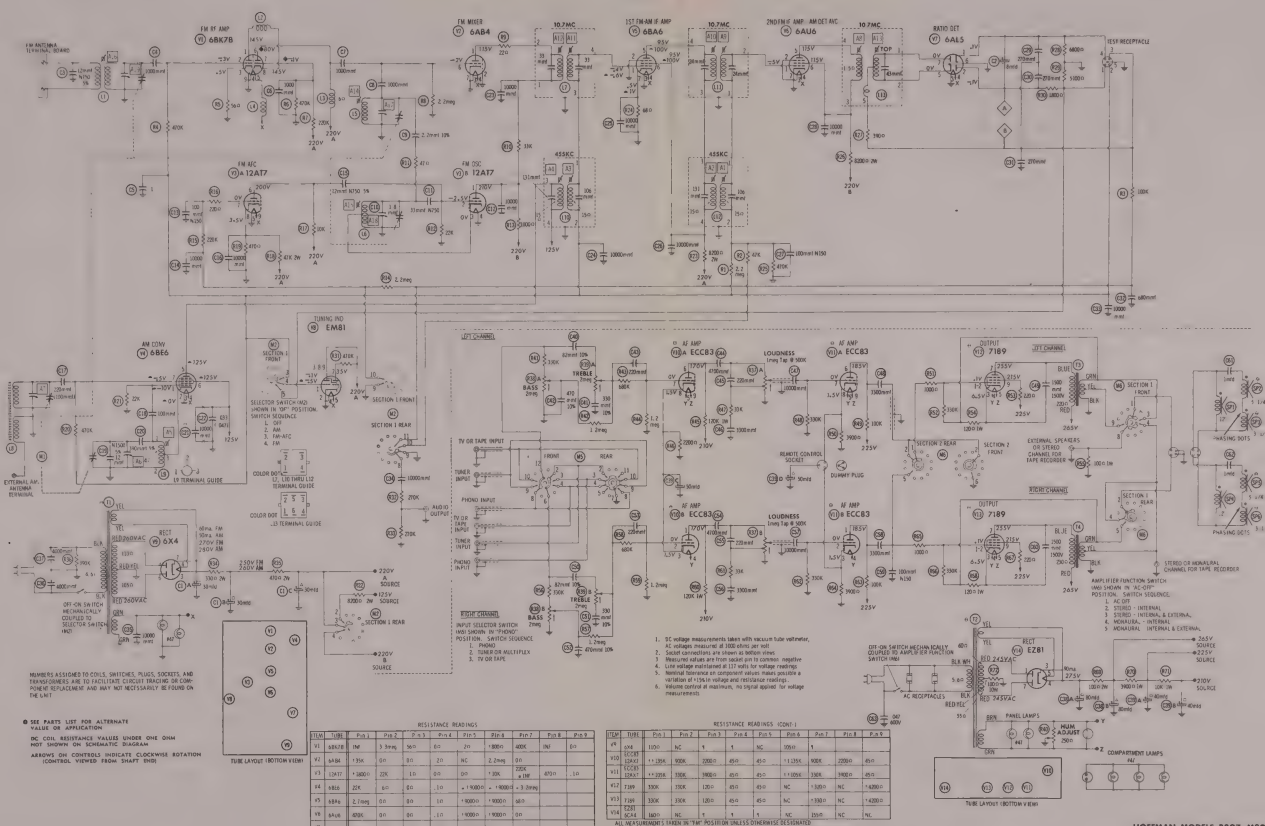
SET 483 FOLDER 9



CHASSIS BOTTOM VIEW
ALIGN., CAP., & MISC. IDENT.



CHASSIS BOTTOM VIEW
RESISTOR & INDUCTOR IDENT.


FM MIXER V7 6AB4
1ST FM-AM IF AMP V8 6BA6
2ND FM-AM IF AMP-AM DET AVC V9 6AU6
RATIO DET V10 6AL5
FM RF AMP V1 6BK7B
FM OSC V3 12AT7
FM MIX V2 12AT7
10.7MC
455KC
TUNING IND V5 EM81
AM CONV V6 6BE6
AF AMP V11A ECC83
AF AMP V11B ECC83
AF AMP V12A ECC83
AF AMP V12B ECC83
OUTPUT V13 7189
OUTPUT V14 7189
RECT V15 6X4
RECT V16 EZ81
LOUDNESS
BASS
TREBLE
LEFT CHANNEL
RIGHT CHANNEL
TV OR TAPE INPUT
PHONO INPUT
TUNER INPUT
AUDIO OUTPUT
REMOTE CONTROL SOCKET
DUMMY PLUG
EXTERNAL SPEAKERS OR STEREO CHANNEL FOR TAPE RECORDER
AMPLIFIER FUNCTION SWITCH (AND SHOWN IN "AC-OFF" POSITION) SWITCH SEQUENCE
1. AC OFF
2. STEREO - INTERNAL
3. STEREO - INTERNAL & EXTERNAL
4. MONAURAL - INTERNAL
5. MONAURAL - INTERNAL & EXTERNAL
STEREO OR MONAURAL CHANNEL FOR TAPE RECORDER
PHASING DOTS
SECTION 1 FRONT
SECTION 1 REAR
SECTION 2 FRONT
SECTION 2 REAR
SELECTOR SWITCH (AND SHOWN IN "OFF" POSITION) SWITCH SEQUENCE
1. OFF
2. AM
3. FM-MPX
4. FM
COLOR DOT
12 THRU 112 TERMINAL GUIDE
EXTERNAL AM ANTENNA TERMINAL
FM ANTENNA TERMINAL BOARD
OFF-ON SWITCH MECHANICALLY COUPLED TO SELECTOR SWITCH (AM)
OFF-ON SWITCH MECHANICALLY COUPLED TO AMPLIFIER FUNCTION SWITCH (AM)
AC RECEPTACLES
RED PILOT
PANEL LAMPS
HUM ADJUST
COMPARTMENT LAMPS
TUBE LAYOUT (BOTTOM VIEW)
TUBE LAYOUT (BOTTOM VIEW)
SOURCE
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
INC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
1. DC voltage measurements taken with vacuum tube voltmeter.
2. AC voltages measured at 1000 ohms per volt.
3. Socket connections as shown at bottom views.
4. Measured values are from socket pin to common negative.
5. Line voltage maintained at 117 volts for voltage readings.
6. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
7. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BK7B	INF	3.3meg	56Ω	0Ω	2Ω	*800Ω	400K	INF	0Ω
V2	6AB4	*35K	0Ω	0Ω	2Ω	NC	2.2meg	0Ω		
V3	12AT7	*1800Ω	22K	1Ω	0Ω	0Ω	*30K	220K ± 1W	470Ω	1Ω
V4	6BE6	22K	0Ω	0Ω	1Ω	*1900Ω	*1800Ω	*3.3meg		
V5	6BA6	2.7meg	0Ω	0Ω	1Ω	*800Ω	*800Ω	68Ω		
V6	6AU6	470K	0Ω	0Ω	1Ω	*800Ω	*800Ω	0Ω		
V7	6AL5	680Ω ± 5%	1900Ω	0Ω	1Ω	2.3meg	0Ω	2.3meg		
V8	EM81	330Ω ± 2.5meg	0Ω	*800Ω	0Ω	1Ω	NC	*470K	*800Ω	*800Ω

RESISTANCE READINGS (CONT.)

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V9	6X4	1100	NC	†	†	NC	105Ω	†		
V10	ECC83 (LEFT)	††135K	900K	2200Ω	450Ω	450Ω	††135K	900K	2200Ω	450Ω
V11	ECC83 (RIGHT)	††135K	330K	1900Ω	450Ω	450Ω	††105K	330K	1900Ω	450Ω
V12	7189	330K	330K	120Ω	450Ω	450Ω	NC	*330Ω	NC	*420Ω
V13	7189	330K	330K	120Ω	450Ω	450Ω	NC	*330Ω	NC	*420Ω
V14	EZ81 (CX14)	1600	NC	†	†	†	NC	250Ω	NC	NC

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
† THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
* MEASURED IN "FM-MPX" POSITION. ▲ MEASURED IN "AM" POSITION
†† MEASURED FROM PIN 7 OF V9. ● MEASURED FROM PIN 8 OF V1.
NC NO CONNECTION

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HOFFMAN MODELS 8807, M807, SP807, W807, 88006, M8006, SP8006, W8006 (Ch. 1120, 1129)

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use only enough generator output to provide a usable indication on VTVM.
Suggested Alignment Tools:
A1 thru A4, A8 thru A13 ..... GENERAL CEMENT #5097, 8727
WALSCO #2515
A5, A15, A18 ..... GENERAL CEMENT #8721, 8722
WALSCO #2519
A6, A7, A17, A19 ..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A14, A16 ..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT - SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of AM Conv. Low side to chassis.	455KC (400∿ AM)	(AM) Tuning gang fully open	AC probe across audio output jack.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	High side thru 150mmf to AM antenna terminal. Low side to chassis.	600KC	600KC	"	A5	"
3.	"	1620KC	Tuning gang fully open	"	A6	"
4.	"	1400KC	Tune to 1400KC signal	"	A7	Adjust for maximum deflection while rocking tuning gang.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM - SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side thru .01mfd to FM RF stator lug of FM tuning gang. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference	DC probe to point (A). Common to chassis.	A8, A9, A10, A11, A12	Adjust for maximum deflection.
6.	"	"	"	DC probe to point (B). Common to chassis.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE - SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side thru .01mfd to FM RF stator lug of FM tuning gang. Low side to chassis.	10.7MC (450KC swp)	(FM) Point of non-interference	Vert. Amp. to point (A). Low side to chassis.	A8, A9, A10, A11, A12	Disconnect stabilizing capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1. Reconnect C2.
6.	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A13	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT - SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals with 120Ω in each lead	90MC (Unmod.)	(FM) 90MC	DC probe to point (A). Common to chassis.	A14, A15, A16	Adjust for maximum deflection.
8.	"	107MC	107MC	"	A17, A18, A19	Adjust for maximum deflection. Repeat steps 7 and 8.

FIG. 1

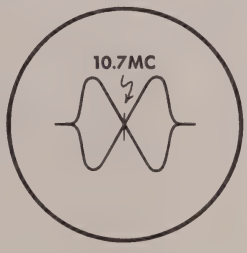
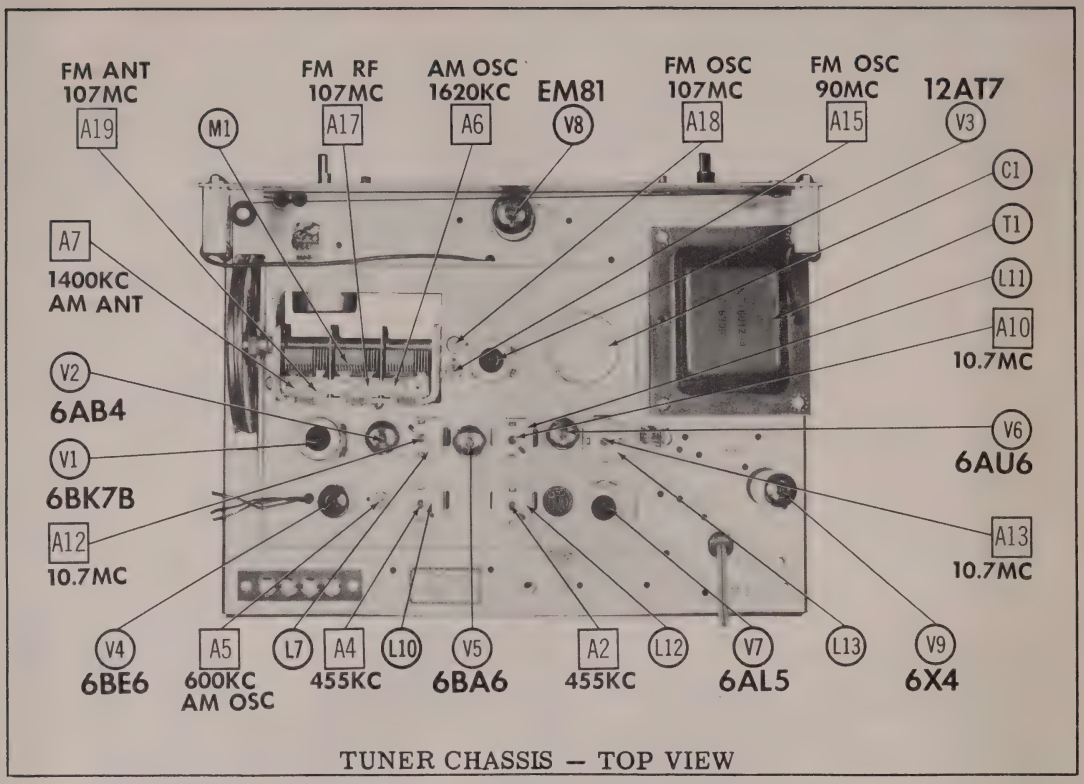
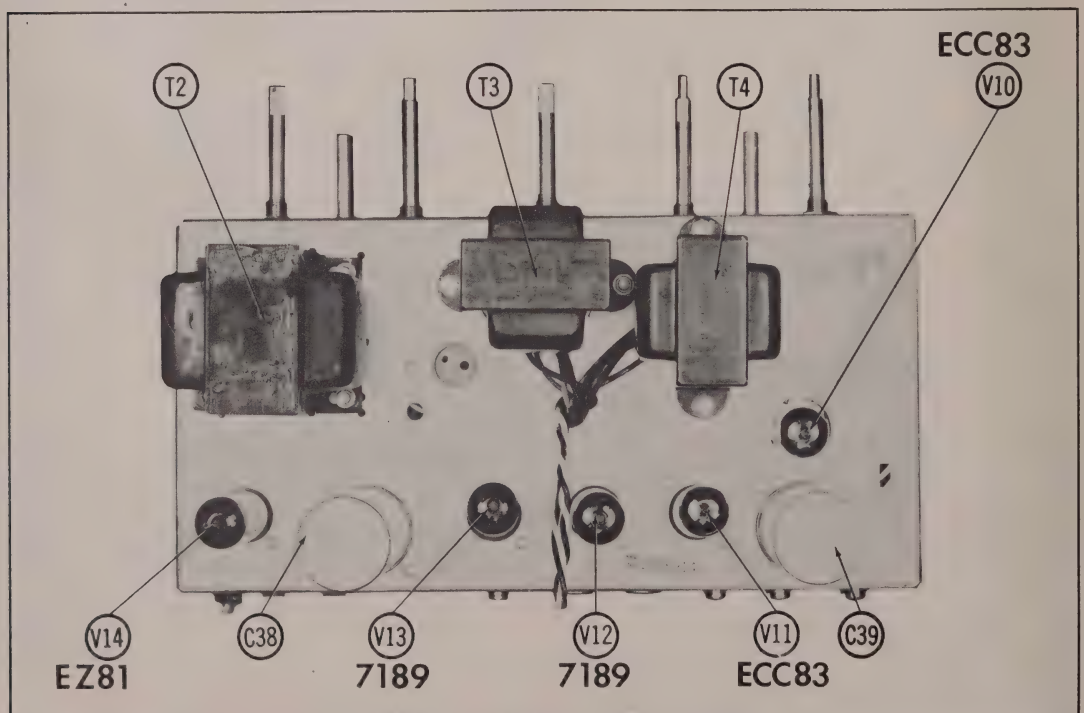


FIG. 2



TUNER CHASSIS – TOP VIEW



AMP. CHASSIS – TOP VIEW

TUNER PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆		
ITEM No.	USE	TYPE
V1	FM RF Amplifier	6BK7B
V2	FM Mixer	6AB4
V3	FM AFC - FM Osc.	12AT7
V4	AM Converter	6BE6
V5	1st FM-AM IF Amp.	6BA6
V6	2nd FM IF Amp. - AM Det. - AVC	6AU6
V7	Ratio Detector	6AL5
V8	Tuning Indicator	EM81/6DA5
V9	Rectifier	6X4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA HOFFMAN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲30	350	856908	AFH3-39	C0300	FP376.7	TMT-35	TVL-3782	
B	■30	300							
C	▲30	300							
C2	8	150	856014	PRS1405	BBR8-150	TC41	TD-8-150	TVA-1405	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	12 N750 5%			TCN-12	C10Q12U		CN7-412	10TCU-Q12
C4	1000		SI 1000	D6-102	BYA10D1	CCD-102	GP210	5HK-D10
C5	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P1
C6	1000		SI 1000	D6-102	BYA10D1	CCD-102	GP210	5HK-D10
C7	1000		SI 1000	D6-102	BYA10D1	CCD-102	GP210	5HK-D10
C8	1000		SI 1000	D6-102	BYA10D1	CCD-102	GP210	5HK-D10
C9	2.2 10%		NPO-SI 2.2	DTZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C10	1-8	#872006						
C11	33 N750		N750-DI 33	DTN-33	C10Q33U	CCTN-330	CN7-433	CCTN-330
C12	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C13	100 N150	#851128				*		10TCP-T10
C14	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C15	12 N750 5%			TCN-12	C10Q12U		CN7-412	10TCU-Q12
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C17	220	(100) †	SI 220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C18	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C19	12 N1500 5%	#850304				*		
C20	390 5%		1469-00039		5R5T39	CM-20B-391J	MCE243	MS-339
C21	10000	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C22	.033 400V	(.047)†	P488N-033	DD-303	CUB4S33	4DP-2-333	GEM-4133	4TM-S33
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C25	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C27	100 N150	#851128				*		10TCP-T10
C28	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C29	270		DI-270	DD-271	L10T27	CCD-271	GP327	10TS-T27
C30	270		DI-270	DD-271	L10T27	CCD-271	GP327	10TS-T27
C31	270		DI-270	DD-271	L10T27	CCD-271	GP327	10TS-T27
C32	680		DI-680	DD-681	BYA10T68	CCD-681	GP368	10TS-T68
C33	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C34	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C35	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C36	4000		DI-4000	DD-402	BYA10D4	CCD-392	GP240	5HK-D40
C37	4000		DI-4000	DD-402	BYA10D4	CCD-392	GP240	5HK-D40

Hoffman Part Number. † Alternate Value.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Not used in some versions.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R1	2.2meg	
R2	47K	
R3	100K	
R4	470K	
R5	56Ω	
R6	470K	
R7	220K	
R8	2.2meg	
R9	22Ω	
R10	33K	
R11	47Ω	
R12	22K	

ITEM No.	RATING	REMARKS
R13	1000Ω	
R14	2.2meg	
R15	220K	
R16	220Ω	
R17	10K	
R18	47K 2W	
R19	470Ω	
R20	470K	
R21	22K	
R22	8200Ω 2W	
R23	8200Ω 2W	
R24	68Ω	

ITEM No.	RATING	REMARKS
R25	470K	
R26	8200Ω 2W	
R27	390Ω	
R28	6800Ω	
R29	5100Ω	
R30	1800Ω	
R31	470K	
R32	270K	
R33	270K	
R34	330Ω 2W	
R35	470Ω 2W	
R36	390K	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA HOFFMAN PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Antenna Trans.	776003-1						
L2	RF Choke	750008	19-1000	19-1000	BC-561	4602		1. 1uh
L3	RF Choke	750009				4609		5. 6uh ①
L4	Fil. Choke	750007	19-1000	19-1000	BC-561	4602		1. 1uh
L5	FM RF Coil	776001						
L6	FM Osc. Coil	768009						
L7	1st FM IF Trans.	760012	16-3487	16-3487	FM-254	1463		
L8	Loopstick	924002						
L9	AM Osc. Coil	768010						
L10	1st AM IF Trans.	760011	16-6758	16-6758	BC-352	12-C1	RF-1	
L11	2nd FM IF Trans.	760013	16-3487	16-3487	FM-254	1463		
L12	2nd AM IF Trans.	760011	16-6758	16-6758	BC-353	12-C2	RF-2	
L13	Ratio Detector	774004	17-3498	17-3498	FM-255	1465		

① IRC Part #CL1

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA HOFFMAN PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .51A	520VCT @ .060A	6.3V @ .6A	716012-4 ①						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 2.7A									

① Alternate Part #716012.

MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
M1	Tuning Cap.	872009	5 Gang (Ant. 9-288mmf, Osc. 9-294mmf)
M2	Switch	902013	Function

AMP PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V10	Left Channel AF Amp. - Right Channel AF Amp.	ECC83/12AX7 (7025)*
V11	Left Channel AF Amp. - Right Channel AF Amp.	ECC83/12AX7 (7025)*
V12	Left Channel Output	7189 (EL84/6BQ5) *
V13	Right Channel Output	7189 (EL84/6BQ5) *
V14	Rectifier	EZ81/6CA4

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA HOFFMAN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C38A	▰80	400	856705	AFHS2-45-50	B0356	FP229.3	TMD-59	TVL-2670	
B	▲80	400							
C39A	▲40	350	857106	AFH4-53		FP436		TVL-3636.5 TVA-1206	
B	■40	350							
C	50	25							
D	▲50	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C40	82 10%		DI-82	DD-820	L10Q82	CCD-820	GP482	10TS-Q82
C41	330 10%		DI-330	DD-820	L10T33	CCD-331	GP333	10TS-T33
C42	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C43	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C44	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	GP247	5HK-D47
C45	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C46	3300		BPD-0033	DD-332	BYA10D33	CCD-332	GP233	5HK-D33
C47	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C48	3300		BPD-0033	DD-332	BYA10D33	CCD-332	GP233	5HK-D33
C49	1500 1500V		HVD-15-1500	DDI6-152	HVB20D15	16DP-1-152	2HV-215	30GA-D15
C50	82 10%		DI-82	DD-820	L10Q82	CCD-820	GP482	10TS-Q82
C51	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C52	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C53	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C54	4700		BPD-0022	DD-472	BYA10D47M	CCD-472	GP247	5HK-D47
C55	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C56	3300		BPD-0033	DD-332	BYA10D33	CCD-332	GP233	5HK-D33
C57	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C58	3300		BPD-0033	DD-332	BYA10D33	CCD-332	GP233	5HK-D33

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C59	100 N150	#851128				*		10TCP-T10
C60	1500 1500V		HVD-15-1500	DDI6-152	HVB20DI5	16DP-1-152	2HV-215	30GA-D15
C61	1mfd 100V		P288N-1.0		CUB2W1		GEM-21	2TM-M1
C62	1mfd 100V		P288N-1.0		CUB2W1		GEM-21	2TM-M1
C63	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47

\# Hoffman Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA HOFFMAN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R37A	1meg 500K Tap	½	802028					Loudness, Right Channel
B	1meg 500K Tap	½						Loudness, Left Channel
R38A	2meg	½	802029					Bass, Right Channel
B	2meg	½						Bass, Left Channel
R39A	2meg	½	802029					Treble, Right Channel
B	2meg	½						Treble, Left Channel
R40A	250Ω	½	800014	AB-2		B11-201	R250L	Hum Adjust
B	Shaft	½		AK-1		TM4	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R41	330K	
R42	1.2meg	
R43	680K	
R44	1.2meg	
R45	120K 1W	
R46	2200Ω	
R47	33K	
R48	330K	
R49	100K	
R50	3900Ω	
R51	1000Ω	

ITEM No.	RATING	REMARKS
R52	330K	
R53	120Ω 1W	
R54	220Ω	
R55	100Ω 1W	
R56	330K	
R57	1.2meg	
R58	680K	
R59	1.2meg	
R60	120K 1W	
R61	33K	
R62	330K	

ITEM No.	RATING	REMARKS
R63	100K	
R64	3900Ω	
R65	1000Ω	
R66	330K	
R67	220Ω	
R68	120Ω 1W	
R69	100Ω 2W	
R70	3900Ω 1W	
R71	10K 1W	
R72	100Ω 10W	

AMP PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	HOFFMAN PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	117V @ .66A	520VCT @ .090A	6.3V @ .6A	716018-1 ①						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 2.8A									

① Alternate Part #716018.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	HOFFMAN PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3	4500Ω	8Ω Tap @ 4Ω	724023							
T4	4500Ω	8Ω Tap @ 4Ω	724024							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	HOFFMAN PART No.	QUAM PART No.	
SP1	12"	PM	12-14Ω	708814	12A1Z12. 4	① Part #708203 may be used in some versions in this application.
SP2	5 1/4"	PM	14-16Ω	708203-1 ①	52A1Z15. 9	
SP3	3 1/2"	PM	14-16Ω	708015 ②	3A15TZ15. 9	② Models M-8006, B-8006, W-8006, SP-8006.
SP4	12"	PM	12-14Ω	708814	12A1Z12. 4	
SP5	5 1/4"	PM	14-16Ω	708203-1 ①	52A1Z15. 9	
SP6	3 1/2"	PM	14-16Ω	708015 ②	3A15TZ15. 9	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA								
	HOFFMAN PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M3	981015 ①	13T	Not Req.	13	Not Req.			10T2-S	Not Req.

① Includes needles. Part #981007 used in models M807, B807, W807, SP807.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	HOFFMAN PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	
M4		* W-204DS † ♦ or * W-204DD-1 ♦	* A-44X † or * A-44XSD † ♦ or * A-44XDD ♦	† Jewel ♦ Diamond * Includes Cartridge

MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
M5	Switch	902019	Selector
M6	Switch	902020	Function

CABINETS & CABINET PARTS

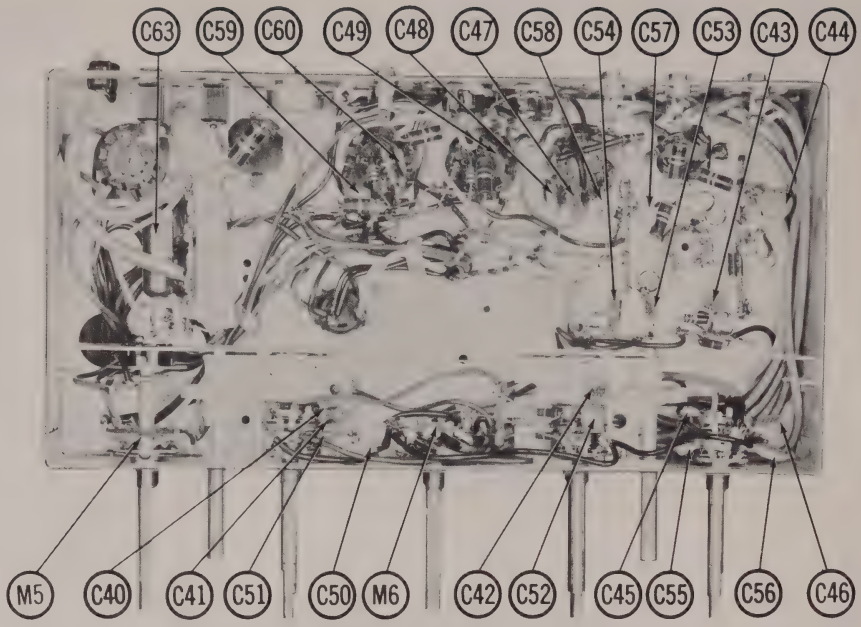
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	500052	Tuning
Knob	508014	Volume, Inner
Knob	510002	Volume, Outer
Knob	508015	Bass, Treble (Inner)
Knob	510001	Bass, Treble (Outer)
Knob	500051	Speaker Selector, Stereo Selector
Knob	500057	Tuner Function
Dial Glass	619023	Amplifier
Dial Glass	619010	Tuner
Cabinet	381034	Model M807
Cabinet	381038	Model M8006
Cabinet	381036	Model B807
Cabinet	381039	Model B8006
Cabinet	381035	Model W807
Cabinet	381040	Model W8006
Cabinet	381037	Model SP807
Cabinet	381041	Model SP8006

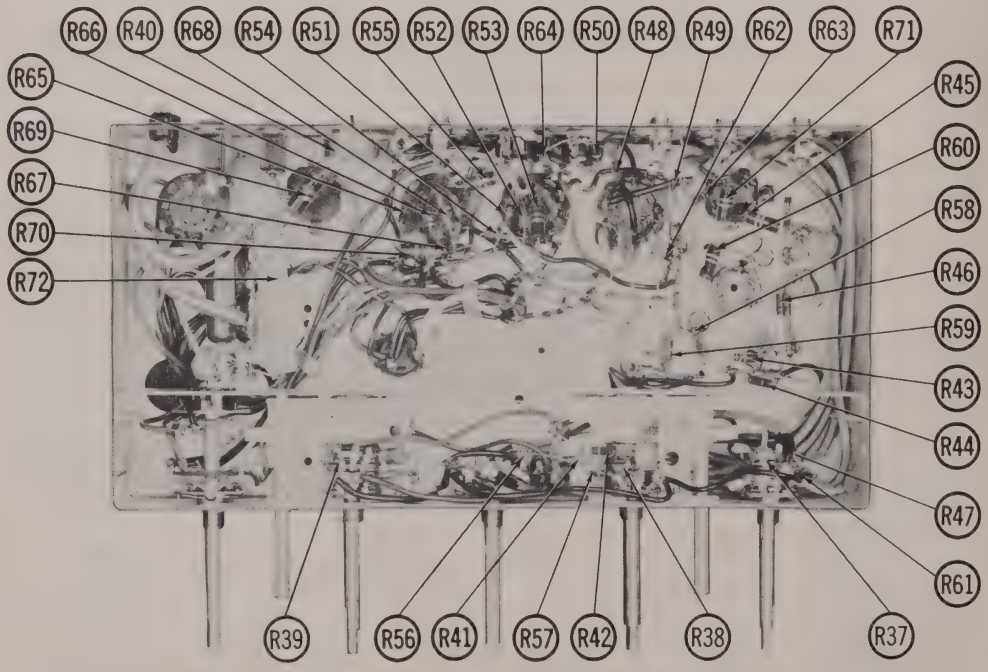
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

HOFFMAN MODELS B807, M807, SP807, W807, B8006, M8006, SP8006, W8006 (Ch. 1120, 1129)



AMP. CHASSIS BOTTOM VIEW – CAP. & MISC. IDENT.

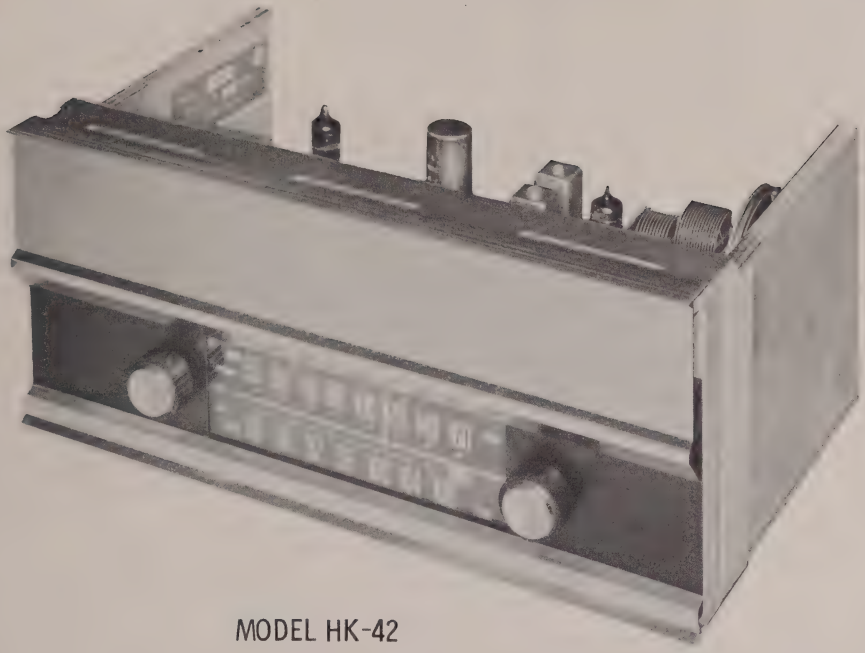


AMP. CHASSIS BOTTOM VIEW – RESISTOR IDENT.

PHOTOFACT® Folder

MOTOROLA MODELS HK-42, HK-43
(Ch. HS-783A, B, HS-786A, B)

MOTOROLA MODELS HK-42, HK-43
(Ch. HS-783A, B, HS-786A, B)



MODEL HK-42

MOTOROLA MODELS HK-42, HK-43
(Ch. HS-783A, B, HS-786A, B)

TRADE NAME	Motorola Models HK-42 (Ch. HS-783A, B), HK-43 (Ch. HS-786A, B)		
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois		
TYPE SET	AC Operated 8 Tube FM-AM Tuner		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	28 Watts, .26 Amp. @ 117 Volts AC (FM)
TUNING RANGE-BROADCAST	535-1620KC	FREQ. MOD.	88-108MC

SET 483 FOLDER 10

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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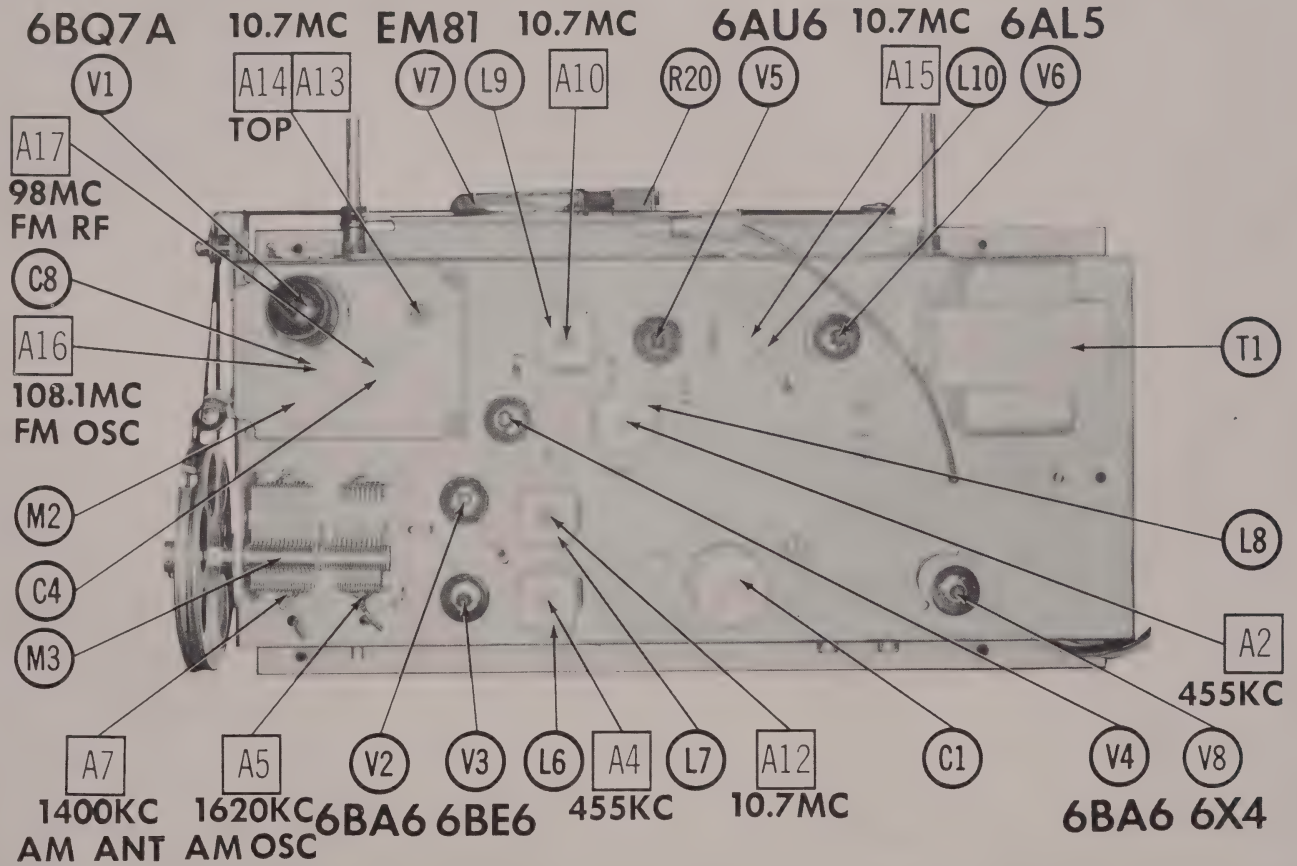
JL827



CHASSIS TOP VIEW

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use only enough generator output to provide a usable indication on VTVM.
Suggested Alignment Tools:
- A1 thru A4, A6 ..... GENERAL CEMENT #8728, 8729, 8987, 8988, 8989; WALSCO #2531, 2532
- A5, A7 ..... GENERAL CEMENT #5004, 5008, 5009; WALSCO #2520
- A8 thru A15 ..... GENERAL CEMENT #5097, 8727; WALSCO #2515
- A16, A17 ..... GENERAL CEMENT #5000, 5003, 8276, 8290; WALSCO #2512, 2515, 2522, 2523, 2525, 2537

AM ALIGNMENT - SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .1mfd to antenna stator lug of AM tuning gang. Low side to chassis.	455KC (400∿ AM)	(AM) Tuning gang fully open	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	535KC	Tuning gang fully closed	"	A6	Adjust for maximum deflection.
4.	"	1400KC	Tune to 1400KC signal	Not used	A7	With chassis installed in cabinet, adjust for maximum close of tuning indicator.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM - SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	Across FM antenna terminals.	10.7MC (Unmod)	(FM) Tuning gang fully open	DC probe to point Ⓑ. Common to chassis.	A8, A9, A10, A11, A12, A13, A14	Adjust for maximum deflection.
6.	"	"	"	DC probe to point Ⓒ. Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE - SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	Across FM antenna terminals.	10.7MC (450KC Swp)	(FM) Tuning gang fully open	Vert. Amp. to point Ⓑ. Low side to chassis.	A8, A9, A10, A11, A12, A13, A14	Disconnect Stabilizing capacitor (C2). Adjust for maximum gain and symmetry of response similar to Fig. 1. Reconnect C2.
6.	"	"	"	Vert. Amp. to point Ⓒ. Low side to chassis.	A15	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT - SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals.	108.1MC (Unmod)	Tuning gang fully open	DC probe to point Ⓑ. Common to chassis.	A16	Adjust for maximum deflection.
8.	"	98MC	Tune for maximum near 98MC	"	A17	"

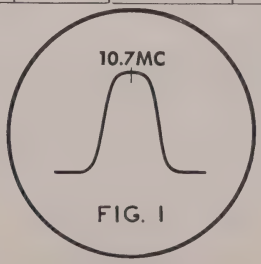


FIG. 1

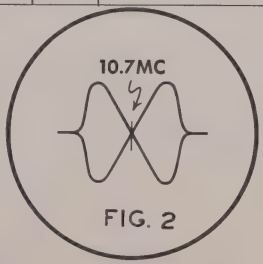
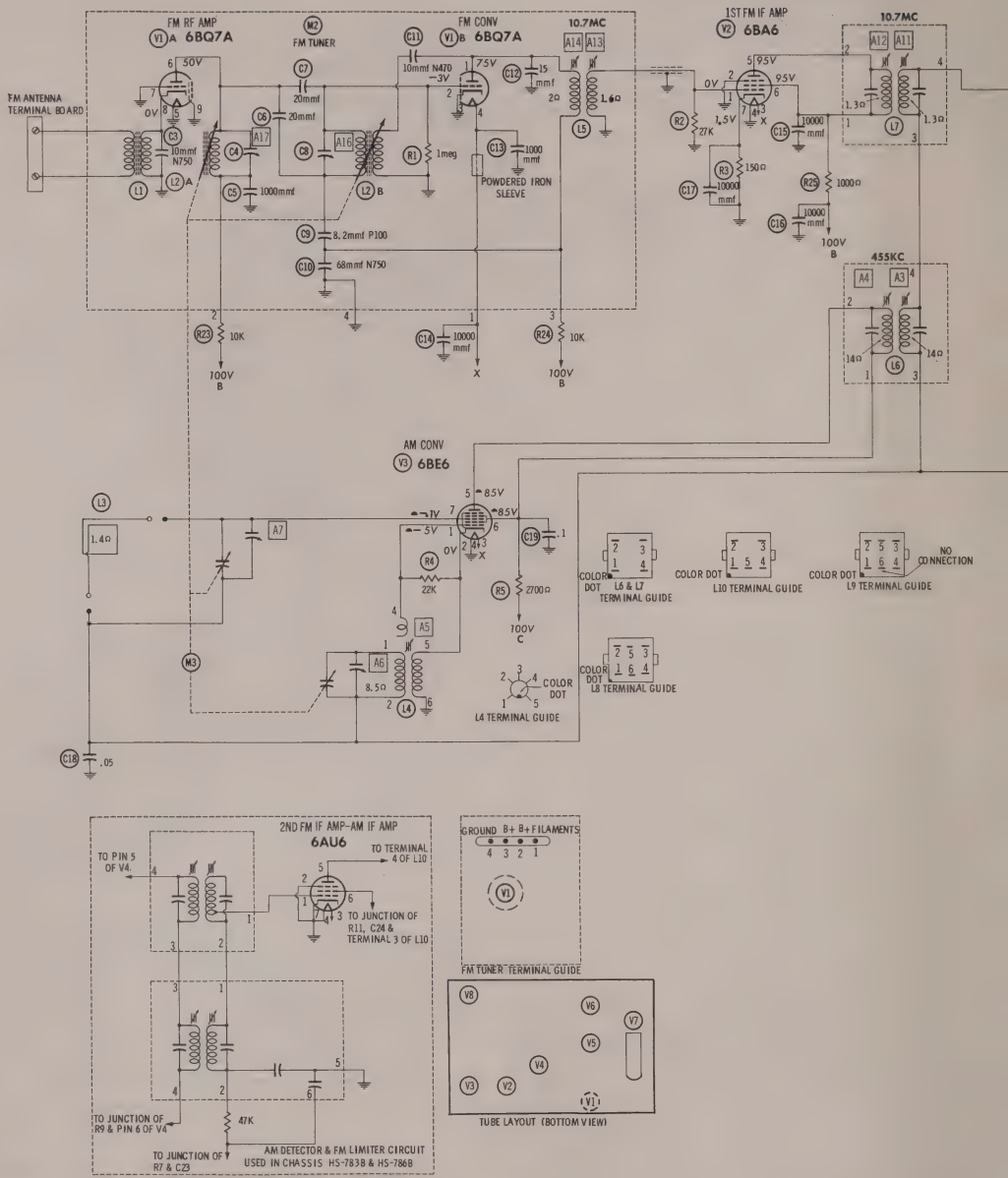


FIG. 2



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

❸ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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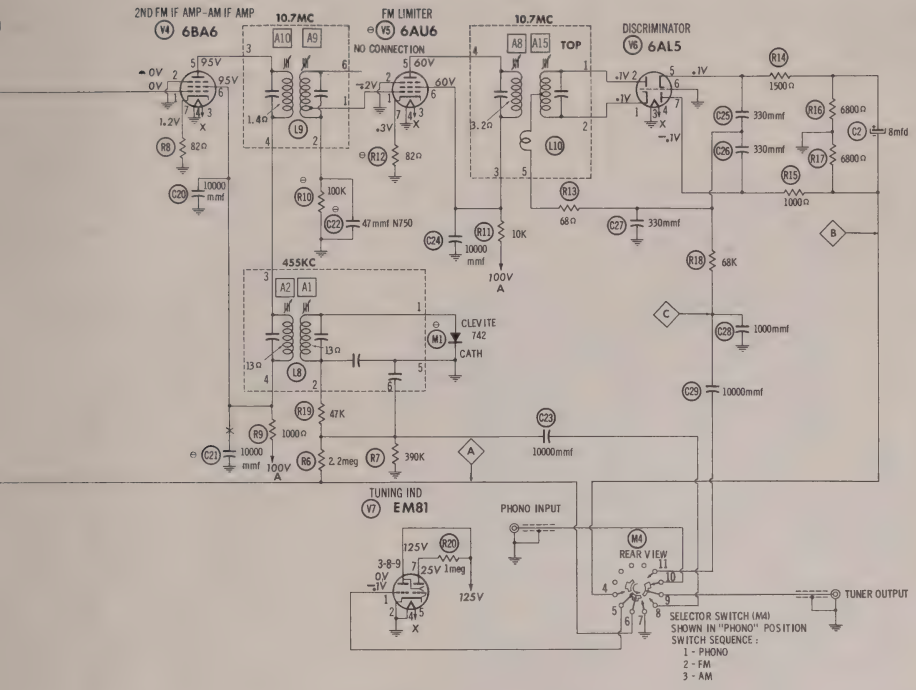
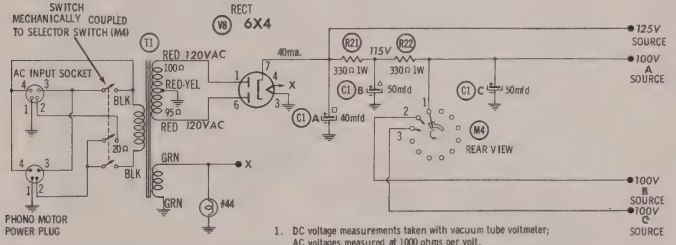
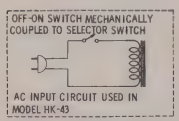






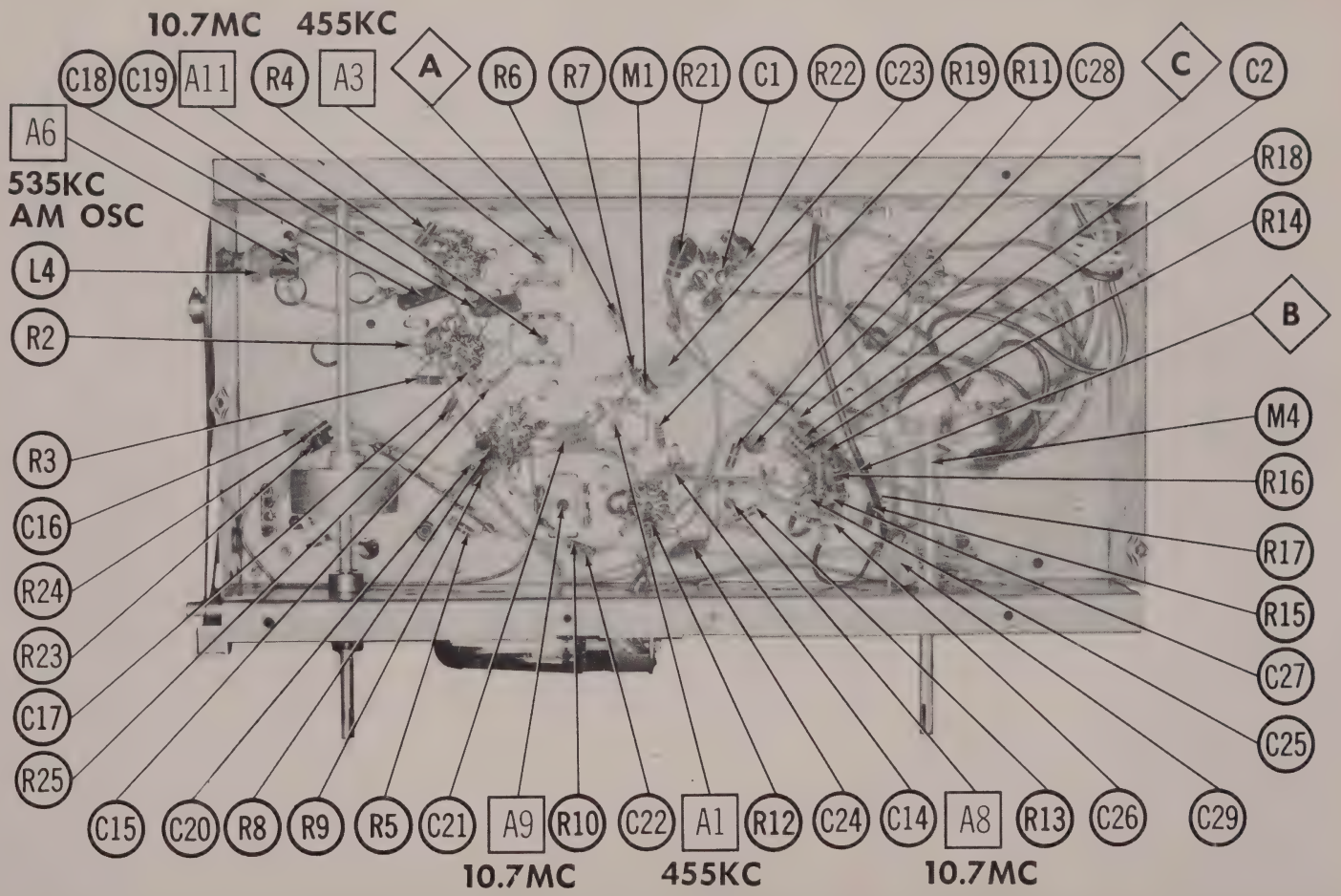
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BQ7A	†10K	1meg	0Ω	.3Ω	0Ω	†10K	0Ω	.5Ω	0Ω
V2	6BA6	1.6Ω	0Ω	.3Ω	0Ω	†1700Ω	†1700Ω	150Ω		
V3	6BE6	22K	.7Ω	.3Ω	0Ω	▪†3400Ω	▪†3400Ω	2.6meg		
V4	6BA6	18Ω ▪2.6meg	0Ω	.3Ω	0Ω	†1700Ω	†1700Ω	82Ω		
V5	6AU6	100K	0Ω	.3Ω	0Ω	†10K	†10K	82Ω		
V6	6AL5	INF	INF	0Ω	.3Ω	8300Ω	0Ω	7800Ω		
V7	EM81 6DA5	6800Ω ▪2.6meg	0Ω	†0Ω	0Ω	.3Ω	†0Ω	†1meg	†0Ω	†0Ω
V8	6X4	100Ω	NC	0Ω	.3Ω	NC	95Ω	¶		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
▪ MEASURED IN AM POSITION
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V8. NC NO CONNECTION.

MOTOROLA MODELS HK-42, HK-43
(Ch. HS-783A, B, HS-786A, B)



CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆	GENERAL ELECTRIC ◆		◆ RAYTHEON ◆	SYLVANIA ◆	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Conv.	6BQ7A	V5	FM Limiter	6AU6 ①
V2	1st FM IF Amp.	6BA6	V6	Ratio Detector	6AL5
V3	AM Converter	6BE6	V7	Tuning Indicator	EM81/6DA5
V4	2nd FM-1st AM IF Amp.	6BA6	V8	Rectifier	6X4

① "B" versions include function of AM Detector and omit crystal (M1).

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	■40	150	23D645336	AFH3-11-50	XCO105	FP311.65	TMT-10	TVL-3442	
B	▲50	150							
C	50	150							
C2	8	50	23A638536	PRSI405	BBR8-150	TC41	TMD-39	TVL-2630	

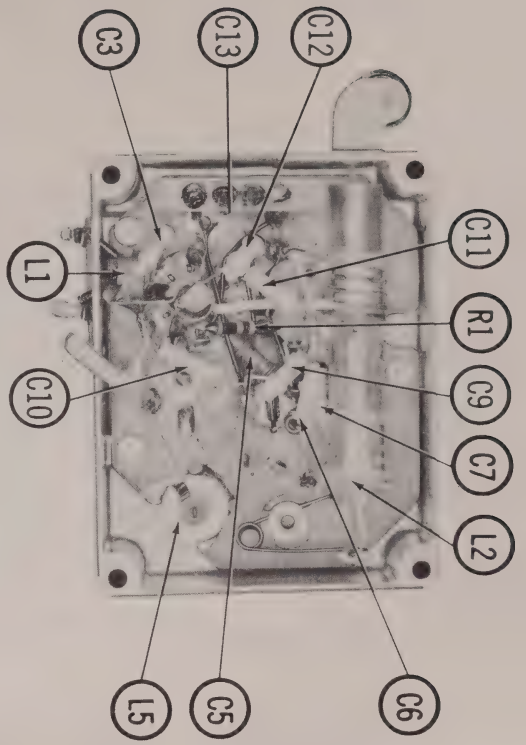
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	10 N750		N750-SI 10	TCN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C4								
C5	1000		SI 1000	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C6	20		NPO-SI 20	TCZ-20	C10Q2C	CCTO-200	GP420	10TCC-●20
C7	20		NPO-SI 20	TCZ-20	C10Q2C	CCTO-200	GP420	10TCC-Q20
C8								
C9	8.2 P100	#21K640027						
C10	68 N750		N750-SI 68	TCN-68	C10Q68U	CCTN-680 *	CN7-468	10TCU-Q68
C11	10 N470	#21K640026						
C12	15		NPO-SI 15	TCZ-15	C10Q47C	CCTO-150	CNO-415	10TCC-Q15
C13	1000		SI 1000	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C14	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C18	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S5
C19	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P1
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C21	10000	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C22	47 N750	Note 2	N750-DI 47	DTN-47	C10Q47U	CCTN-470	CNO-447	10TCU-Q47
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C25	330		DI 330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C26	330		DI 330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C27	330		DI 330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C28	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C29	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
# Motorola Part No. Note 1. Not used in some versions. Note 2. Used in "A" versions only.

FM RF SUBCHASSIS



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R1	1meg	
R2	27K	
R3	150Ω	
R4	22K	
R5	2700Ω	
R6	2. 2meg	
R7	390K	
R8	82Ω	
R9	1000Ω	
R10	100K	Note 1
R11	10K	
R12	82Ω	Note 1
R13	68Ω	
R14	1500Ω	
R15	1000Ω	
R16	6800Ω	
R17	6800Ω	
R18	68K	
R19	47K	
R20	1meg	
R21	330Ω 1W	
R22	330Ω 1W	
R23	10K	
R24	10K	
R25	1000Ω	

Note 1. Used in Ch. HS-783A, 786A only.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA MOTOROLA PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Trans.	25K640033						
L2A	FM RF Coil	24K640031						
B	FM Osc. Coil							
L3	AM Loop Ant.	24D645324						
L4	AM Osc. Coil	24B638340	14-1073	14-1073	BC-393	69-OSC		
L5	1st FM IF Trans.	25K640034						
L6	1st AM IF Trans.	24C634507	16-6758	16-6758	BC-352	12-C1	RF-1	
L7	2nd FM IF Trans.	24C638646	16-3487	16-3487	FM-254	1463		
L8	2nd AM IF Trans.	24K634508	16-6770	16-6770	BC-355	12-C6		
L9	3rd FM IF Trans.	24K638647						
L10	Ratio Det.	24C638488	17-3498	17-3498	FM-255	1465		

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .26A	240VCT @.040A	6.3V @ 2.9A	25C645339						

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA MOTOROLA PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M1	Clevite 742	48K636691	1N60	1N60	1N60	AM Detector (Pigtail) Note 1

Note 1. Not used in "B" versions.

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	FM Tuner	77D638430	(UT-343) Complete
M3	Tuning Cap.	19B641736	AM, 2 Gang (Ant. 33-426mmf, Osc. 16-140mmf)
M4	Switch	40C645337	Function (Includes Off-On)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

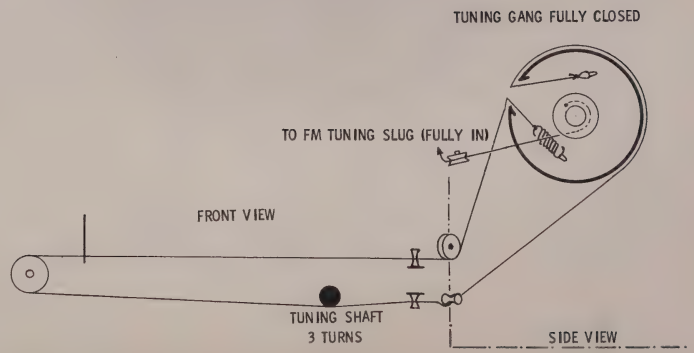
NAME	PART NO.	DESCRIPTION
Knob	36K641534	Off-On Function, Tuning
Dial Pointer	1K645298	
Dial Scale	34K645451	Model HK42 (Horiz. Reading)
Dial Scale	34C645450	Model HK42 (Vert. Reading)
Dial Scale	34K646124	Model HK43 (Horiz. Reading)
Dial Scale	34C646123	Model HK43 (Vert. Reading)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

DIAL CORD STRINGING



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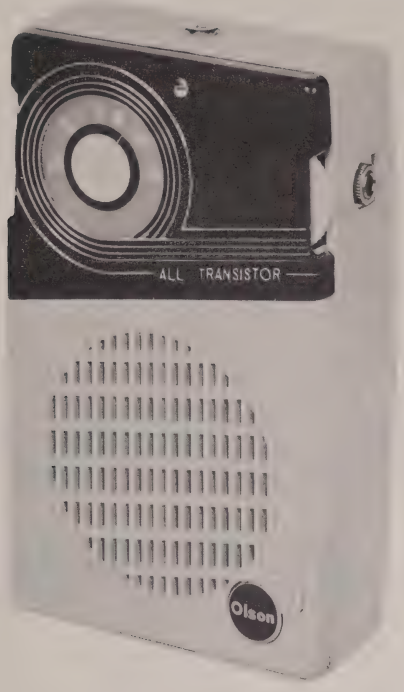
OLSON
MODEL RA-315

OLSON
MODEL RA-315



OLSON
MODEL RA-315

TRADE NAME	Olson Model RA-315
SUPPLIER	Olson Radio Corp., 260 S. Forge Street, Akron 8, Ohio
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC
RATING	5MA @ 9 Volts DC
TUNING RANGE—BROADCAST	535 — 1620KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A3	"
3.	"	600KC	600KC	"	A4	"
4.	"	1400KC	Tune to 1400KC signal.	"	A5	Adjust for maximum output while rocking tuning gang.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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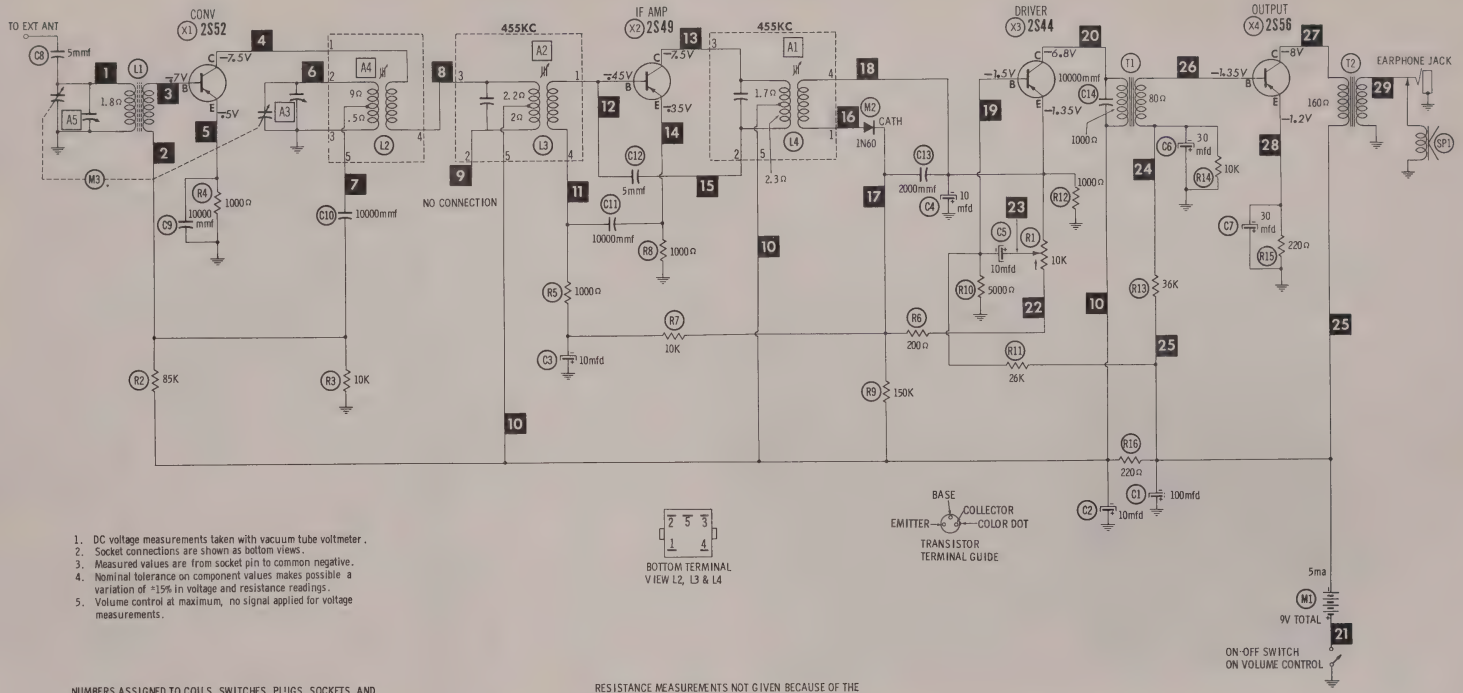
JF673

SET 483 FOLDER 11



1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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OLSON
MODEL RA-315

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2S52	Converter		2N412	2N486	2N412	PNP
X2	2S49	IF Amplifier		2N410	2N483	2N410	PNP
X3	2S44	Driver		2N406	2N362		PNP
X4	2S56	Output		2N408	2N632	2N408	PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	OLSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	100	12		SRE12V100	NLW100-12	TT15X100	ML100-15	TE-1135	
C2	10	6		XPP-6010	NLW10-6	TT6X10	ML10-6	TE-1087	
C3	10	6		XPP-6010	NLW10-6	TT6X10	ML10-6	TE-1087	
C4	10	6		XPP-6010	NLW10-6	TT6X10	ML10-6	TE-1087	
C5	10	6		XPP-6010	NLW10-6	TT6X10	ML10-6	TE-1087	
C6	30	6		XPP-6030	NLW30-6	TT6X30	ML30-6	TE-1092	
C7	30	6		XPP-6030	NLW30-6	TT6X30	ML30-6	TE-1092	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C8	5		NPO-SI 5.0	TCZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C9	10000		C80V103AM	DDM-103	H-05S1		TA-110	TG-S10
C10	10000		C80V103AM	DDM-103	H-05S1		TA-110	TG-S10
C11	10000		C80V103AM	DDM-103	H-05S1		TA-110	TG-S10
C12	5		NPO-SI 5.0	TCZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C13	10000		C80V103AM	DDM-103	H-05S1		TA-110	TG-S10
C14	2000		BPD-002	DD-202	BYA10D2	CCD-202	GP220	5HK-D20

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	OLSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	10K	1/4		B16-216				Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	85K	
R3	10K	
R4	1000Ω	
R5	1000Ω	
R6	200Ω	

ITEM No.	RATING	REMARKS
R7	10K	
R8	1000Ω	
R9	150K	
R10	5000Ω	
R11	26K	

ITEM No.	RATING	REMARKS
R12	1000Ω	
R13	36K	
R14	10K	
R15	220Ω	
R16	220Ω	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		OLSON PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick							
L2	Osc. Coil							
L3	1st IF Trans.							
L4	2nd IF Trans.							

PRINTED BOARD

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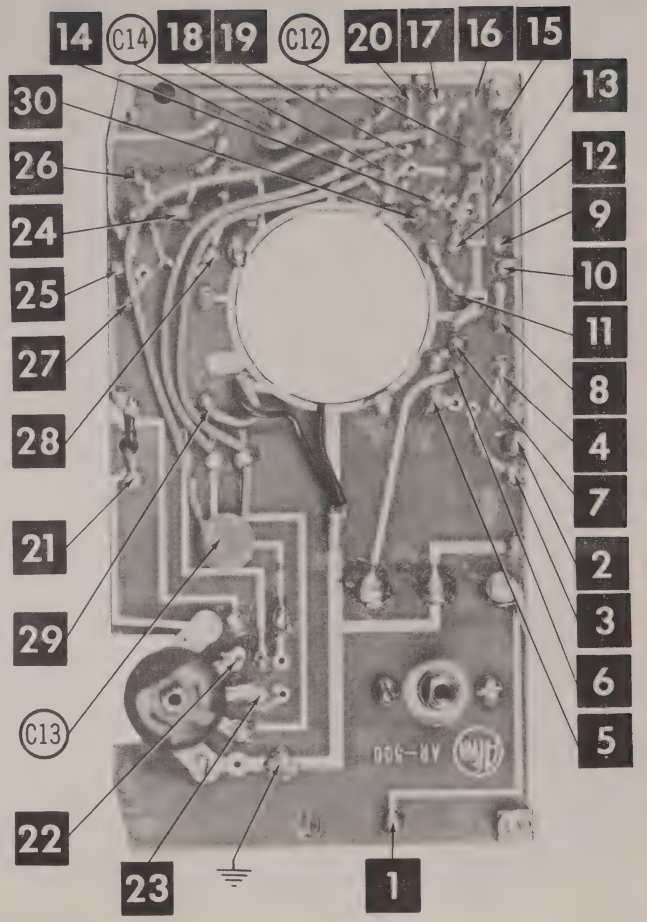


PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	OLSON PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3	1		TR-42			TR-42		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	OLSON PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	1600Ω	8Ω								

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	OLSON PART No.	QUAM PART No.	
SP1	2½"	PM	8-10Ω		25A07	

BATTERIES

ITEM No.	VOLTAGE	OLSON PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			2U6		216		M-1604	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		OLSON PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N60		1N60	1N60	1N60	Detector (Pigtail)

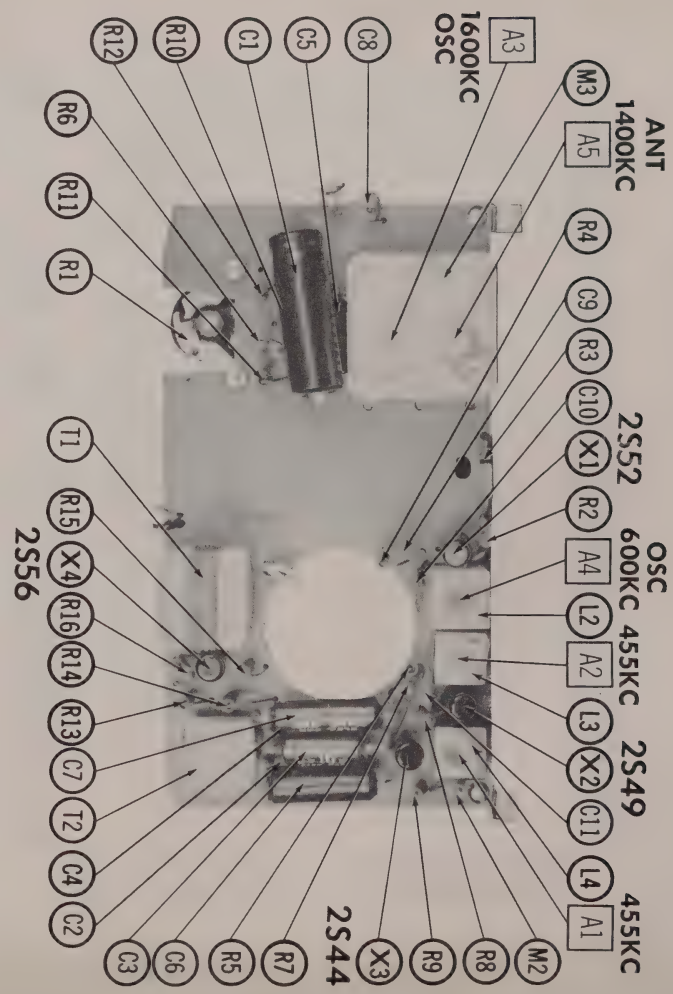
MISCELLANEOUS

ITEM No.	PART NAME	OLSON PART No.	NOTES
M3	Tuning Cap.		2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

**PHILCO
MODEL T-1000**

PHILCO
MODEL T-1000

PHILCO
MODEL T-1000

TRADE NAME	Philco Model T-1000
MANUFACTURER	Philco Corp., Tioga & C Streets, Philadelphia, Pa.
TYPE SET	Battery Operated Transistorized AM Receiver With Battery Operated Clock
POWER SUPPLY	3 Volts DC (Radio) 1.5 Volts DC (Clock)
TUNING RANGE	BROADCAST 535 - 1620KC
RATING	11MA @ 3 Volts DC (No Signal, Min. Volume) 18MA @ 3 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools: A1, A2, A3, A5, A6.... GENERAL CEMENT #8607, 9291, 9294
WALSCO #2520, 2522, 2523, 2524, 2534, 2537
A4..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to antenna stator lug of tuning gang. Low side to B-.	455KC (400% Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	Loop	600KC	600KC	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1620KC	Tuning gang fully open.	"	A5	Adjust for maximum output.
4.	"	1400KC	Tune to 1400KC signal.	"	A6	Adjust for maximum output. Repeat steps 2, 3, and 4.

DISASSEMBLY

1. Remove base panel.
2. Remove printed board mounting screw located diagonally from tuning gang.
3. Disengage board from brackets and remove from housing. (Tuning knob is captive and remains with housing. Shaft must be removed from knob.)

CLOCK REMOVAL

1. Remove clock knobs and battery.
2. Remove bezel mounting screw. Remove bezel and crystal.
3. Remove clock hands by pulling.
4. Open dial clamping tabs and remove dial.
5. Remove 2 clock mounting screws. Disconnect leads from switch. Remove clock.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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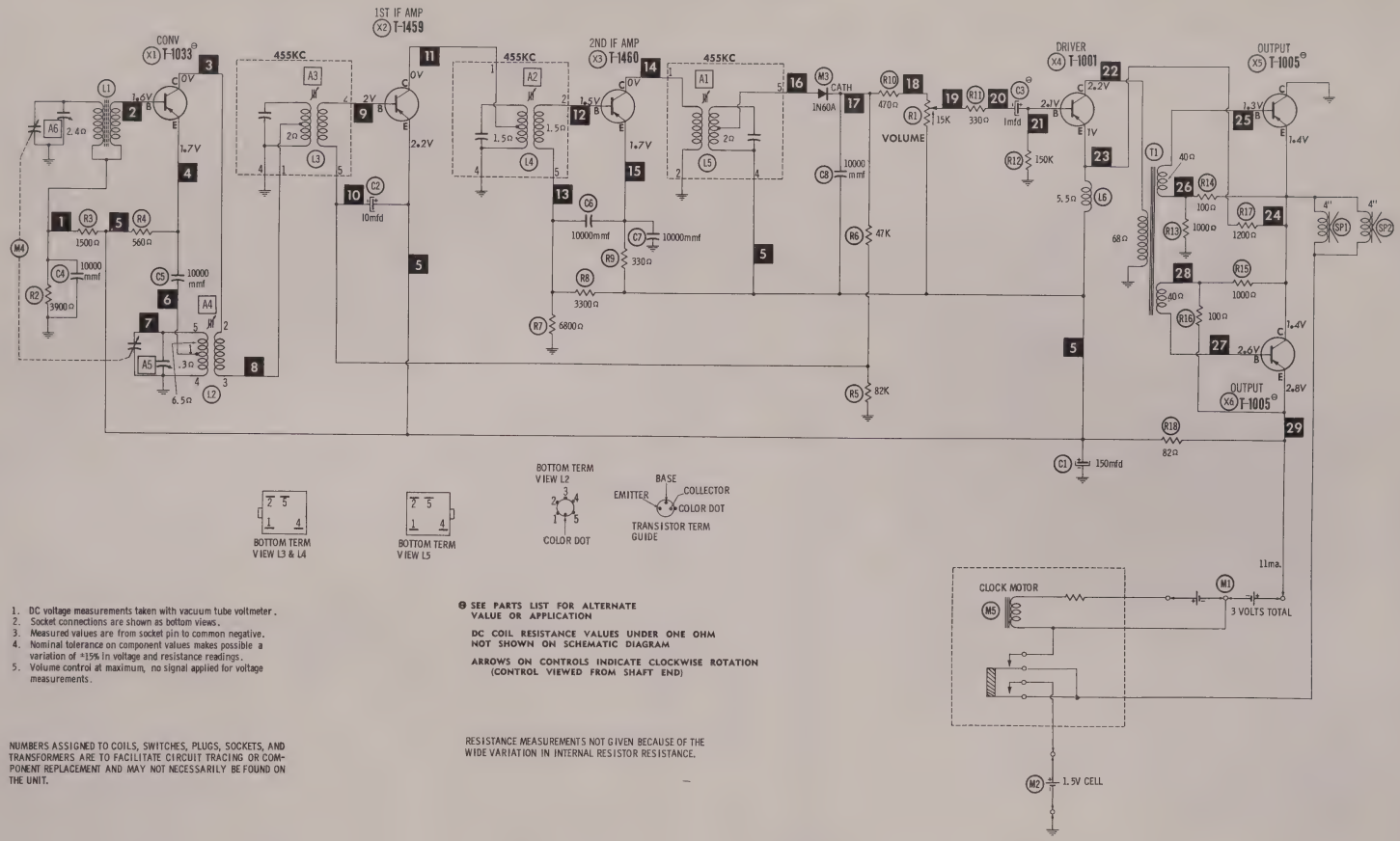
JG651

SET 483 FOLDER 12



1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

❻ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL RESISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE®

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PHILCO
MODEL T-1000

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	T-1033 *	Converter			2N486		PNP
X2	T-1454	1st IF Amplifier			2N483		PNP
X3	T-1460	2nd IF Amplifier					PNP
X4	T-1001	Driver		2N406	2N362	2N406	PNP
X5	T-1005 ♦	Output		2N408	2N632	2N408	PNP
X6	T-1005 ♦	Output		2N408	2N632	2N408	PNP

* Some versions may use a T-1300 in this application.
♦ Some versions may use a T-1009 in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	150	3	30-2599-19	BCD3150	ECPA19			VL-1055	
C2	10	3	30-2599-8	BCD3010	ECPA8	PET1340	MLI0-6	VL-1038	
C3	1	6	30-2591-8	XPP-6001	ECI-6	TT12X1	MLI-6	TE-1080	Note 1

Note 1. Some versions may use .47mfd in this application.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C5	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	15K	½	33-5583-9					Volume

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	3900Ω	
R3	1500Ω	
R4	560Ω	
R5	82K	
R6	47K	
R7	6800Ω	

ITEM No.	RATING	REMARKS
R8	3300Ω	
R9	330Ω	
R10	470Ω	
R11	330Ω	
R12	150K	
R13	1000Ω	

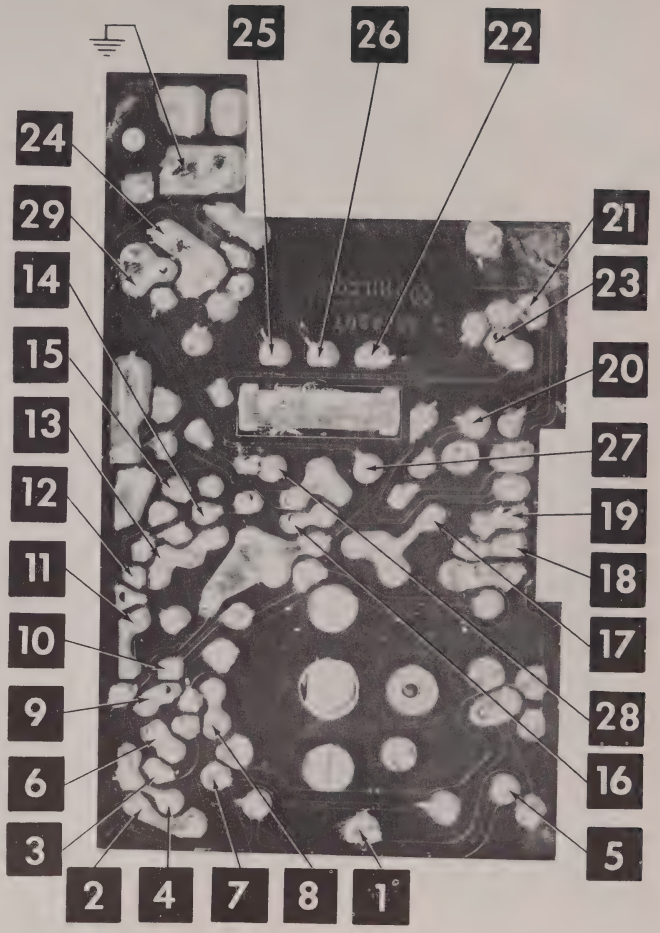
ITEM No.	RATING	REMARKS
R14	100Ω	
R15	10000Ω	
R16	100Ω	
R17	1200Ω	
R18	82Ω	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		PHILCO PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	32-4668-10						
L2	Osc. Coil	32-4669-2						
L3	1st IF Trans.	32-4775-1						
L4	2nd IF Trans.	32-4775-2						
L5	3rd IF Trans.	32-4775-3						
L6	RF Choke	32-4685-1	19-4400	19-4400	TV-202	6136		400uh

PRINTED BOARD

A Howard W. Sams CIRCUITRACE® Photo



PHILCO MODEL T-1000

FOLDER 12

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	PHILCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.5	1 SEC. 2 1	32-8885-1						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	PHILCO PART No.	QUAM PART No.	
SP1	4"	PM	14-16Ω	36-1663-7	4A15Z15.8	
SP2	4"	PM	14-16Ω	36-1663-7	4A15Z15.8	

BATTERIES

ITEM No.	VOLTAGE	PHILCO PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V	P920 *		230 *		A-100 *		M-13R *	* 2 Required
M2	1.5V	P920 ♦		230 ♦		A-100 ♦		M-13R ♦	♦ 1 Required

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		PHILCO PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M3	1N60	34-8022-3	1N60	1N60	1N60	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M4	Tuning Cap.	31-2782-2	2 Gang
M5	Clock	41-2073-2	
	Printed Board	44-6907	

CABINETS & CABINET PARTS

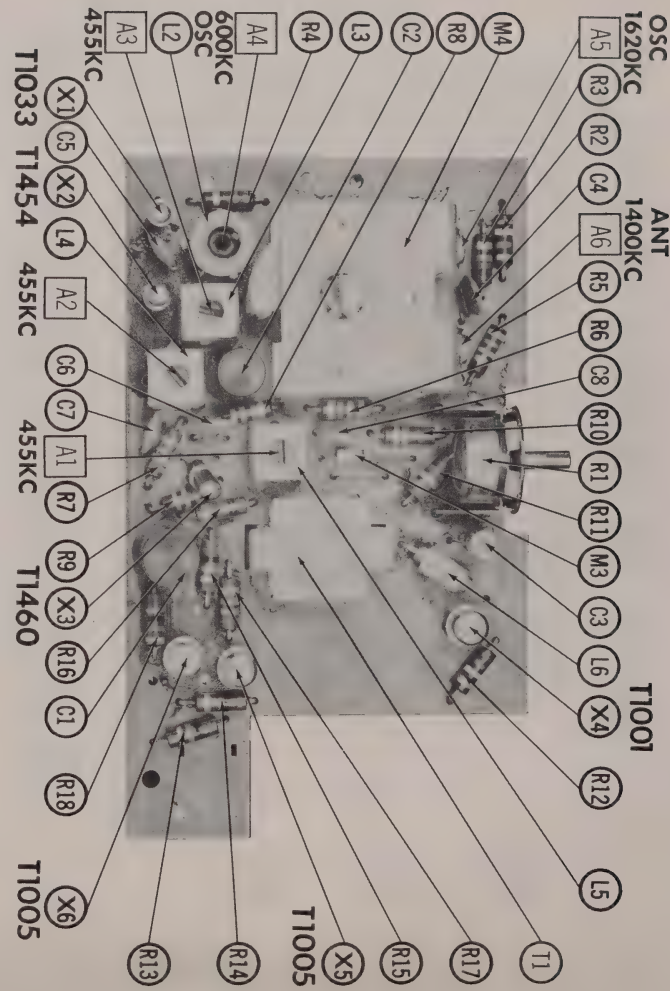
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	54-5475-1	Tuning
Knob	54-6912-2	Volume (Ivory)
Knob	54-6912	Volume (Ebony)
Knob	54-5428-2	Clock
Housing	54-5465-2	Lower (Ivory)
Housing	54-5464-1	Upper (Ebony)
Housing	54-5464-2	Upper (Ivory)
Bottom	54-5466	
Crystal	54-5473-2	Clock

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

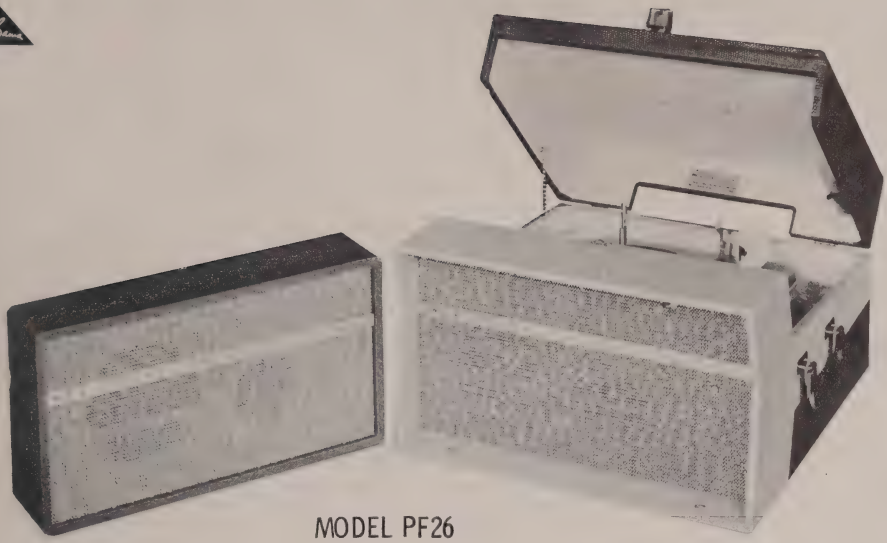
CHASSIS—TOP VIEW



PHOTOFACT® Folder

**RCA VICTOR MODELS
PF26, PF26D (Ch. RS-182)**

RCA VICTOR MODELS
PF26, PF26D (Ch. RS-182)

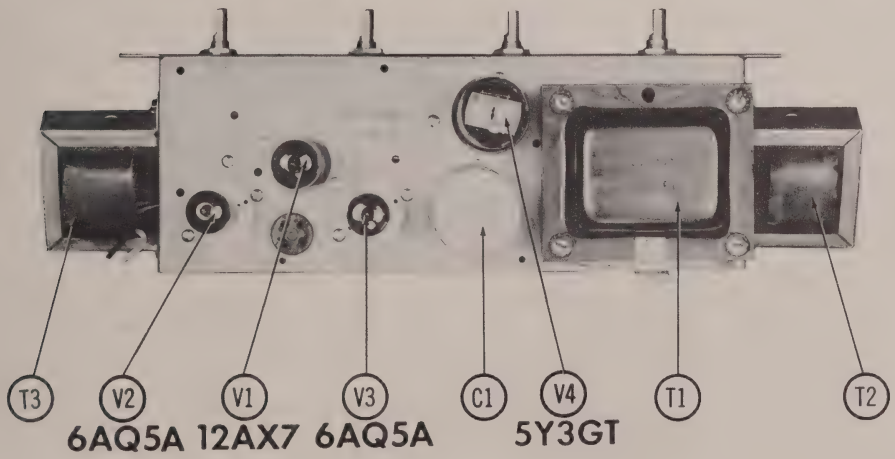


MODEL PF26

RCA VICTOR MODELS
PF26, PF26D (Ch. RS-182)

TRADE NAME	RCA Victor Models PF-26, PF-26D (Ch. RS-182)
MANUFACTURER	RCA Victor Radio & "Victrola" Div., Radio Corp. of America, Camden 8, N. J.
TYPE SET	AC Operated 4 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 61 Watts, .6 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER RP-205H-3 USED IN MODEL PF-26 - SEE RCA RP-205 SERIES-PHOTOFACT SET 358 FOLDER 10 OR RECORD CHANGER MANUAL RC-10.
MODEL PF-26D USES RECORD CHANGER RP-212-1.



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JT637

SET 483 FOLDER 13

PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆		
ITEM No.	USE	TYPE
V1	Left Channel AF Amp. - Right Channel AF Amp.	12AX7
V2	Left Channel Output	6AQ5A
V3	Right Channel Output	6AQ5A
V4	Rectifier	5Y3GT

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	400	108325	AFH4-79	D0663	FP447	TMT-133 TD-20-25	TVL-4739	
B	■40	400							
C	▲20	25							
D	20	25						TVAS-1150 *	
C2	4	10NP	106353	NP-PRS7405	BBR8-150 †	TCN504		TVAS-1150 *	
C3	4	10NP	106353	NP-PRS7405	BBR8-150 †	TCN504			

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

† Use 2 units. Connect negative terminals together. Connect positive terminals into circuit the same as the original non-polarized unit.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C5	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C7	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C8	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C9	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C10	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C11	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K *	1/2	108328					Loudness, Right Channel
B	500K *	1/2						Loudness, Left Channel
R2A	500K	1/2	108327	B-60	AD47-500K-Z		FA55A	Treble, Right Channel
B	500K	1/2		SR-60	Not Req.		RU55A	Treble, Left Channel
C	Shaft			Not Req.	FS-3		CS3500	
R3A	1meg	1/2	108329	B-70	AD47-1meg-Z		FA16A	Bass, Right Channel
B	1meg	1/2		SR-70	Not Req.		RU16A	Bass, Left Channel
C	Shaft			Not Req.	FS-3		CS3500	
R4A	1meg	1/2	108326	B-69	A47-1meg-S	Q11-137	U54	Balance
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

* Taps @ 75K and 150K.

RESISTORS

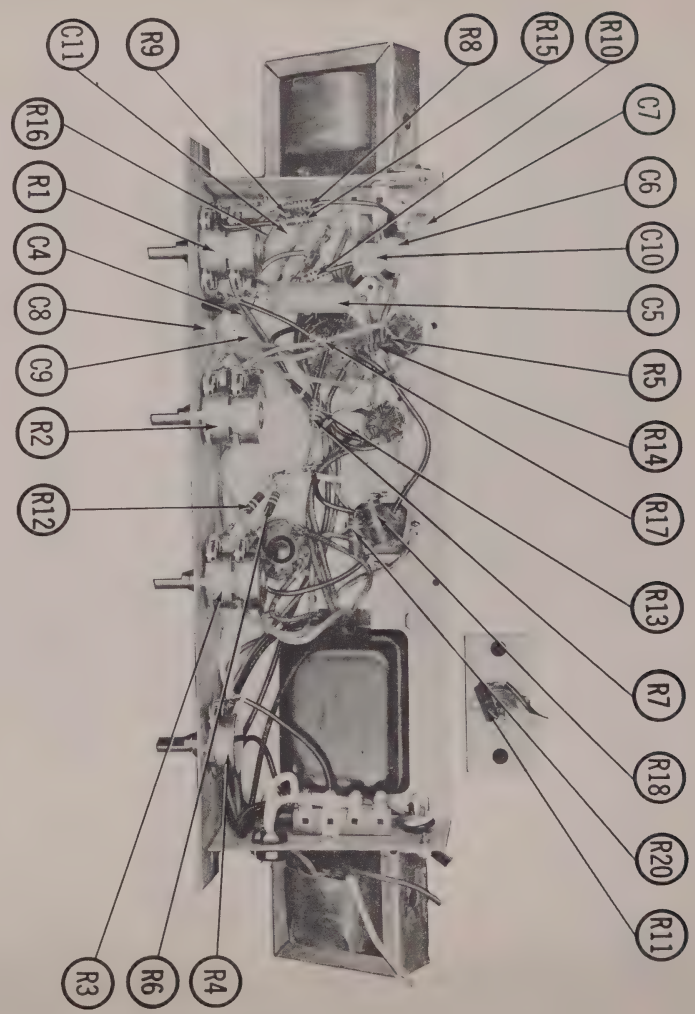
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R5	1meg	
R6	180K	
R7	220K	
R8	22K	
R9	8200Ω	
R10	47K	

ITEM No.	RATING	REMARKS
R11	100Ω 1W	
R12	180K	
R13	220K	
R14	1500Ω	
R15	22K	
R16	8200Ω	

ITEM No.	RATING	REMARKS
R17	47K	
R18	150Ω 2W	
R19	100Ω 1W	
R20	2700Ω 1W	

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
				RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
	PRI.	SEC. 1	SEC. 2							
T1	117V @ .6A	550VCT @ .080A	5V @ 2A	108331	22R04	P-3052		PM-8404	22R04	
	SEC. 3	SEC. 4	SEC. 5							
	6.3VCT @ 1.2A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5500Ω	8Ω tap @ 4Ω	108332	24S92	A-2902①	AU-600 ①	A-3823 ①	24S92	S-5X	① Drill new mounting hole.
T3	5500Ω	8Ω tap @ 4Ω	108332	24S92	A-2902①	AU-600 ①	A-3823 ①	24S92	S-5X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor PART No.	QUAM PART No.	
SP1	6½"	PM	3-4Ω	106701	6A1	
SP2	3½"	PM	6-8Ω	105395	3A15TZ6.4	
SP3	6½"	PM	3-4Ω	106701	6A1	
SP4	3½"	PM	6-8Ω	105395	3A15TZ6.4	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA								
	RCA Victor PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M1	108213 *	13TB ▲	Not Req.	26VS ▲	Not Req.			8TA4-S	N-8TA-S
	108213A ♦	13TBX ▲	Not Req.	26S ▲	Not Req.			8TA4-D	N-8TA-D
	106960A ‡	13TBX ▲	Not Req.	26S ▲	Not Req.			8TA4-D	N-8TA-D

* Model PF-26.
‡ Model PF-26D.
♦ May be used in some versions of the PF-26.
▲ Includes mount.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	RCA Victor PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	
M2	106788 † ① (78RPM) 106787 † ① (LP)	W-105STS † or W-105STD ♦ and W-105MGS † or W-105MGD ♦	M76 † or M76D ♦ and M-77X † or M-77XD ♦	† Jewel ♦ Diamond
	108214 † ②	W-103STSS † or W-103STDS ♦	S-69 † or S-69XD † ♦ or S-69XDD ♦	
	108215 ♦ ③	W-103STDD ♦	S-69XDD ♦	

① Model PF-26.
② Used in some versions of PF-26, when cartridge Part #108213A is used.
③ Model PF-26D.

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M3	Switch	76301	Off-On, Model PF-26
	Switch	108457	Off-On, Model PF-26D
M4	Switch	108330	Stereo-Monaural (Plunger Type, Slide, 2 Pole, 2 Position)

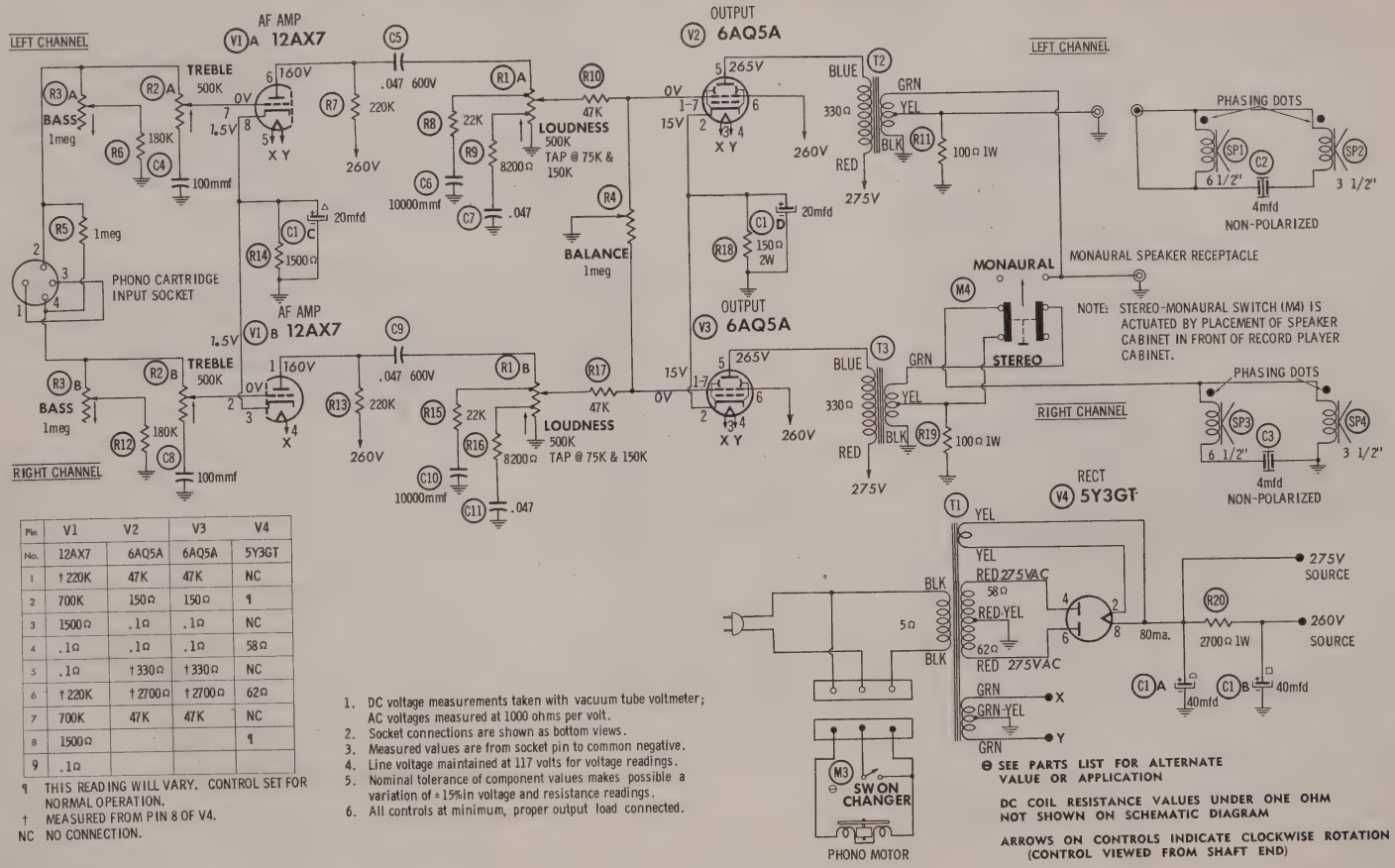
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	108341	Loudness
Knob	108339	Bass, Treble
Knob	108340	Balance
Cabinet	X4579	Model PF-26, With Front Grille Assembly and Changer Shelf
Cabinet	X4665	Model PF-26D, With Front Grille Assembly and Changer Shelf
Case	X4580	Remote Speaker, PF-26
Case	X4678	Remote Speaker, PF-26D
Handle	108335	Model PF-26
Handle	108665	Model PF-26D

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)



Pin No.	V1 12AX7	V2 6AQ5A	V3 6AQ5A	V4 5Y3GT
1	†220K	47K	47K	NC
2	700K	150Ω	150Ω	¶
3	1500Ω	.1Ω	.1Ω	NC
4	.1Ω	.1Ω	.1Ω	58Ω
5	.1Ω	†330Ω	†330Ω	NC
6	†220K	†2700Ω	†2700Ω	62Ω
7	700K	47K	47K	NC
8	1500Ω			¶
9	.1Ω			

¶ THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM PIN 8 OF V4.
NC NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1960

RCA VICTOR MODELS PF26, PF26D (Ch. RS-182)

PHOTOFACT® Folder

SABA
MODELS TC75, TK75

SABA
MODELS TC75, TK75

SABA
MODELS TC75, TK75

GENERAL INFORMATION

Sabafon Models TK75 and TC75 tape recorders record and play back on 1/4-inch tape. The two-track system permits the full length of tape to be used twice. The recorders can record and play back in both directions.

Tape speeds are 7 1/2 and 3 3/4 ips (19 and 9.5 cms). This gives a playback time of approximately one hour for standard tape at 7 1/2 ips (19 cms), and two hours at 3 3/4 ips (9.5 cms). Control is by push buttons, including a Stop (Pause) button for temporarily stopping the recording or playback. Complete facilities for all types of inputs and outputs are provided, as well as remote control.

Two record and two erase heads are used, offset for the respective Track I and Track II positions. The Trick button enables a second recording to be superimposed upon a previous one.

These units operate on 110, 127, 160, 220, or 240 volts, 50 and 60 cycles AC. Before connecting to a line, be absolutely certain it agrees with these specifications.

Imported by:

A. E. Dufenhorst Co.
121 North Third Street
Rockford, Illinois

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

CQ403

SET 483 FOLDER 14

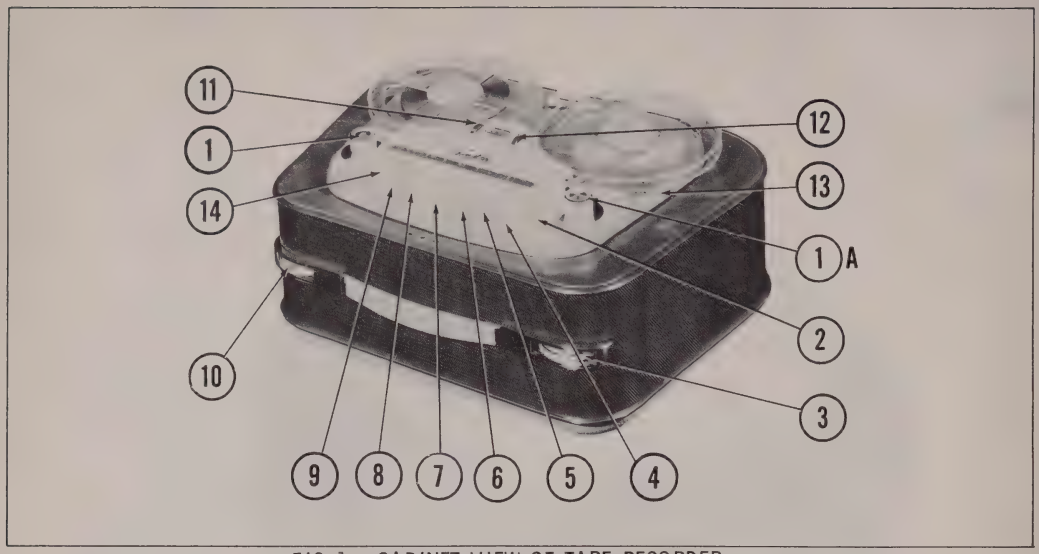


FIG.1 CABINET VIEW OF TAPE RECORDER

FUNCTION OF CONTROLS, KEYS, AND INDICATORS

Tape Speed Control

Set the Tape Speed control before the recording is started (although it can be turned while the tape is moving). Never switch over from the higher to the lower tape speed during rapid winding. However, switching from slow to fast speed is possible — down for 7 1/2 ips (19 cms), up for 3 3/4 ips (9.5 cms).

Tape Counter

The tape counter registers "000" to "999". The reading can be noted while recording, and reference to any given point on the tape rapidly made. After a recorded tape has been logged or referenced, always "zero" the indicator before threading the tape onto the reel or playing the recorder.

Selector Switch

1. When the Selector switch is at the left, recordings can be made from a phonograph.

2. When the Selector switch is in the center, recordings can be made from a radio.

3. When the Selector switch is at the right, recordings can be made from a microphone.

Volume Control

Regulates the volume of the amplifier when a tape is being played back. Also regulates the volume of the monitoring speaker or headphones during a recording.

Tone Control

Regulates the tone quality of the built-in speakers while a recording is being played back. Turning the Tone control counterclockwise emphasizes the low notes; turning it clockwise emphasizes the high notes. When the Tone control is in the center, the full sound of the high and low notes is reproduced.

On-Off Switch and Modulation and Automatic Controls

1. Turning the Control knob clockwise turns on the power to the unit.

2. Further rotation regulates the modulation.

3. Depressing the Control knob switches on the automatic unit. This allows the tape to be switched from Track I to Track II.

IMPORTANT: A tape with metal foil at the ends must be used.

4. During a recording, the tape is then switched off at the end of Track II, so that the recording on Track I will not be erased. During playback, the tape continues from one track to the other. Pulling out the Control knob switches off the automatic unit. When the Control knob is in this position, the tape stops at the end of the track.

Trick Switch

Depressing the Trick switch will blend in a fresh recording onto a recorded tape. The pilot lamp goes on when this key is depressed.

Aufn. (Record) Key

Depress the Aufn. (Record) key to record from a microphone, radio, or phonograph records. The

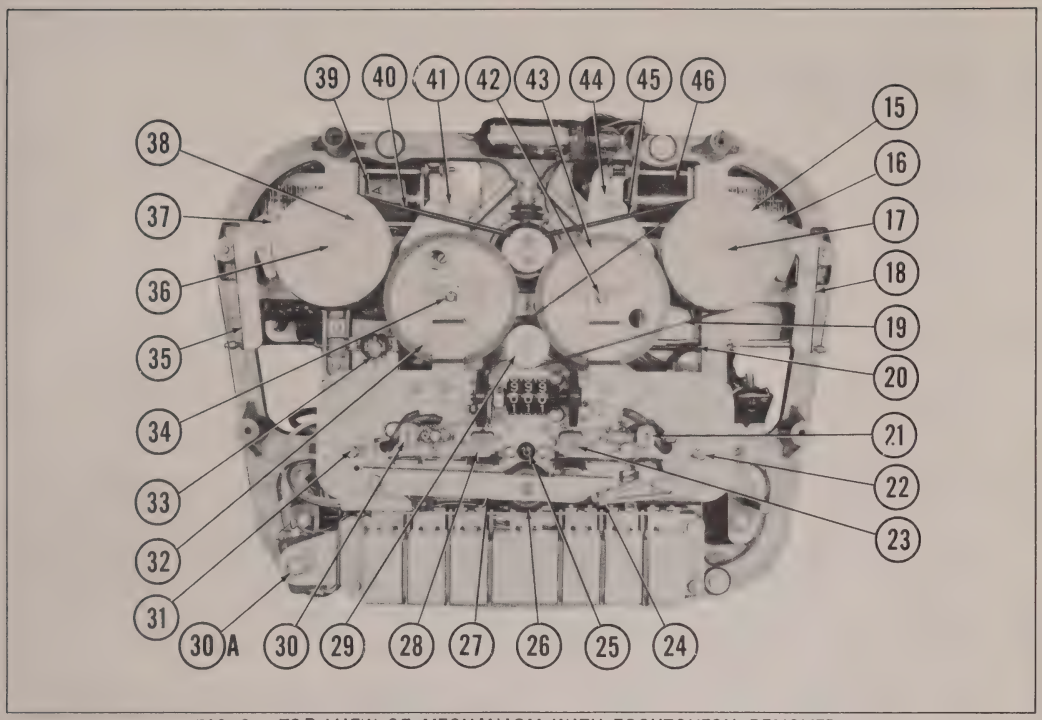


FIG.2 TOP VIEW OF MECHANISM WITH ESCUTCHEON REMOVED

Record Level indicator will light when this key is depressed.

Rewind Key

Depressing the Rewind key (marked with the two arrows pointing left) rapidly winds the tape toward the left.

Track II Key (Left)

Depressing the Track II key (marked with one arrow pointing left) plays back the tape clockwise at the selected tape speed.

Halt (Stop) Key

The Halt key stops the motor and disengages any depressed keys. The tape should be changed only while the key is depressed.

Track I Key (Right)

Depressing the Track I key (marked with one arrow pointing right) will play back the tape counter-clockwise at the selected tape speed.

Forward Key

The Forward key (marked with two arrows pointing right) rapidly winds the tape toward the right.

Stop Key (Pause)

The Stop key is used to interrupt the recording or playback momentarily. The tape will stand still as long as the Stop key is depressed.

INPUT AND OUTPUT SOCKETS

Microphone Socket

Any dynamic microphone with an internal resistance of approximately 200 ohms can be connected to the socket marked Mikrofon. Because a transformer is incorporated in the recorder, the microphone lead can be any length. The input sensitivity is 0.1 microvolt at 200 ohms.

Radio Socket

This is the socket for connecting a radio receiver. A connecting cable, provided with the tape recorder, is used for connecting the tape recorder to the radio. Input sensitivity on the radio socket is 2 microvolts at 20K ohms.

Phonograph Socket

To rerecord phonograph records onto the tape, connect the record player to the socket marked Platte. The sensitivity at this socket is 100 microvolts at 1 megohm.

Output Socket

The Output socket is used to connect an external amplifier. It terminates in a resistance of 20K ohms. The voltage is approximately 1 volt during playback at full level.

Remote Control Socket

The Remote Control socket is used for connecting the remote-control or dictation unit.

OPERATING INSTRUCTIONS

Threading the Tape

1. Put the full reel of tape on the left spindle. Put the empty reel on the right spindle. Now pull out about 18 inches of tape.

2. Using both hands, insert the tape vertically, from above, into the tape-guide slot, making sure the shiny side of the tape faces the keys.

3. Insert the end of the tape into the slotted spoke of the spool so that it sticks out about 3/4 inch.

4. Hold the end of the tape in position, then turn the empty reel until the metal foil has been wound onto it. The metal foil automatically switches the unit over and off. It should be at least 15 inches long to guarantee correct switching off during rapid winding.

To Record From a Microphone

1. Insert the plug of the microphone cable into the socket marked Mikrofon on the back of the recorder.

2. Set the Selector switch to Mikrofon (Microphone).

3. Turn the On-Off switch clockwise until a click is heard. Allow 30 seconds for the tubes to warm up.

4. Depress the Aufn. (Record) key. The Recording Level indicator will light up. Before setting the tape into motion, set the modulation by turning the Modulation control. When the volume is maximum during the recording, the illuminated sectors of the Recording Level indicator should just touch the yellow marking in the middle of the Recording Level indicator.

5. After the Recording Level indicator is correctly adjusted, depress the desired track key. The tape will start moving, and the program will be recorded.

6. After the recording is completed, depress the Halt (stop) key. To interrupt the recording momentarily, depress the Stop (pause) key. The tape will stand still as long as this key is held down.

NOTE: To record on both tracks without stopping the tape, depress the Modulation control. This will switch on the automatic unit. At the end of the tape, the automatic unit will then reverse the direction of the tape and, at the same time, switch over to the other track. When both sides of the tape have been recorded, the recorder will switch off automatically.

To Erase a Tape

The erase head operates automatically when the Record button is depressed, erasing any previous recording while a new one is being made. To erase a recording without making a new one, turn the Modulation control to its minimum position and depress the Aufn. (record) key. To erase the second track, depress the other track key and proceed as before.

Trick Recording

Depressing the Trick button makes it possible to blend new recordings with previously recorded ones. The recorded tape is not erased. Instead the new recording is superimposed over the old one.

1. Depress the Trick button.

2. Follow the instructions under "To Record From a Microphone".

To Make Tape Recordings From a Phonograph

1. Connect the phonograph to the recorder, using the socket marked Platte.

2. Set the Selector switch to Platte (record).

3. Depress the Aufn. (record) key.

4. Regulate the modulation as described under "To Record From a Microphone".

5. Depress the desired Track key.

NOTE: The microphone, radio, and record player can be permanently connected to the tape recorder.

To Play Recordings

1. Rewind the tape to the beginning of the recording. To do this, depress the Rewind key (marked with two arrows).

2. Set the Tape Speed control to the speed of the recorded tape.

3. Depress the desired Track key.

4. Adjust the Volume and Tone controls to the de-

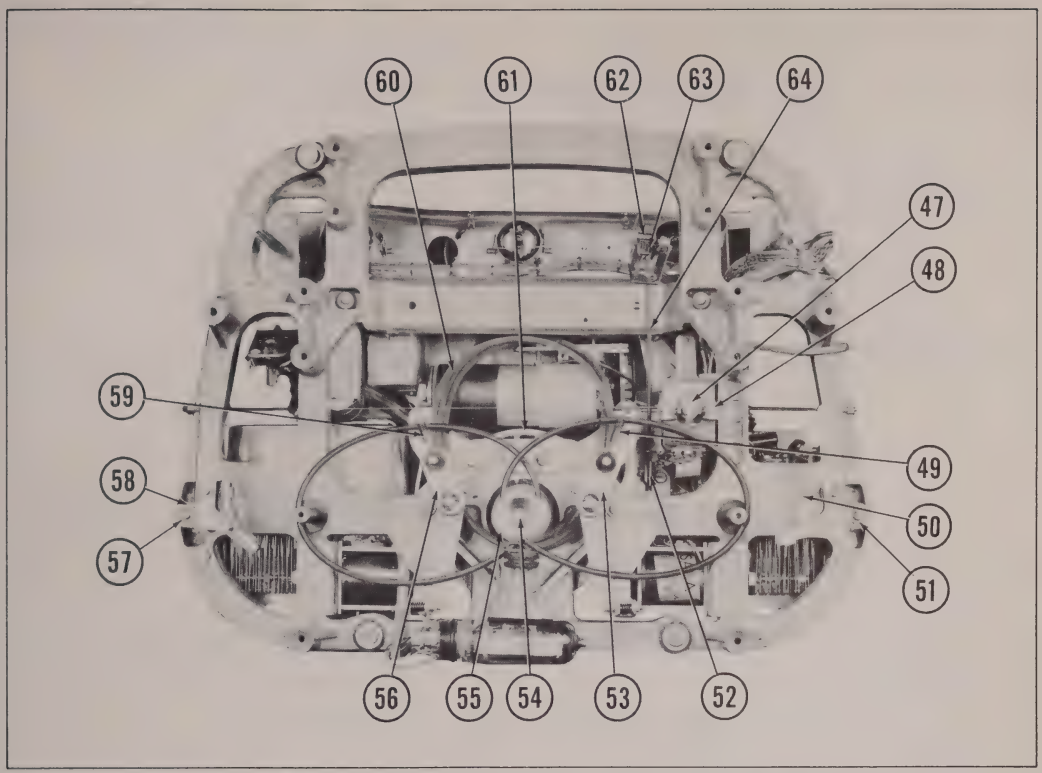


FIG.3 TOP VIEW OF MECHANISM WITH HEAD PLATE REMOVED

sired levels.

NOTE: The record Level indicator remains dark during playback.

To Edit and Splice a Tape

NOTE: Since one track cannot be edited and spliced without affecting the other one, recordings to be edited should be limited to one track only.

1. The tape can be edited by cutting out unwanted portions, or by joining selections into another sequence. Announcements, etc., can be inserted between selections. Unused sections of tape can be spliced for re-use.
2. For best results, cut the tape at a slight diagonal, join the ends with splicing tape on the glossy side, and trim any excess width.

DISASSEMBLY INSTRUCTIONS

1. Remove the two control knobs by loosening the two set screws in each knob.
2. Unscrew the four cross-slotted brass screws.
3. Lift off the top cover plate, and remove the four fixing screws from the chassis.
4. Unplug the output stage from the chassis.
5. Lift the chassis out of the case.
6. To remove the output stage from the case, remove the two cross-slotted screws from the bracket. Then lift out the stage.
7. To reassemble, reverse this procedure.

ADJUSTMENTS

Clutch

Fasten a thread to a reel. Wind the thread around the core, and fasten the loose end to a spring scale. With the reel turning in the winding direction,

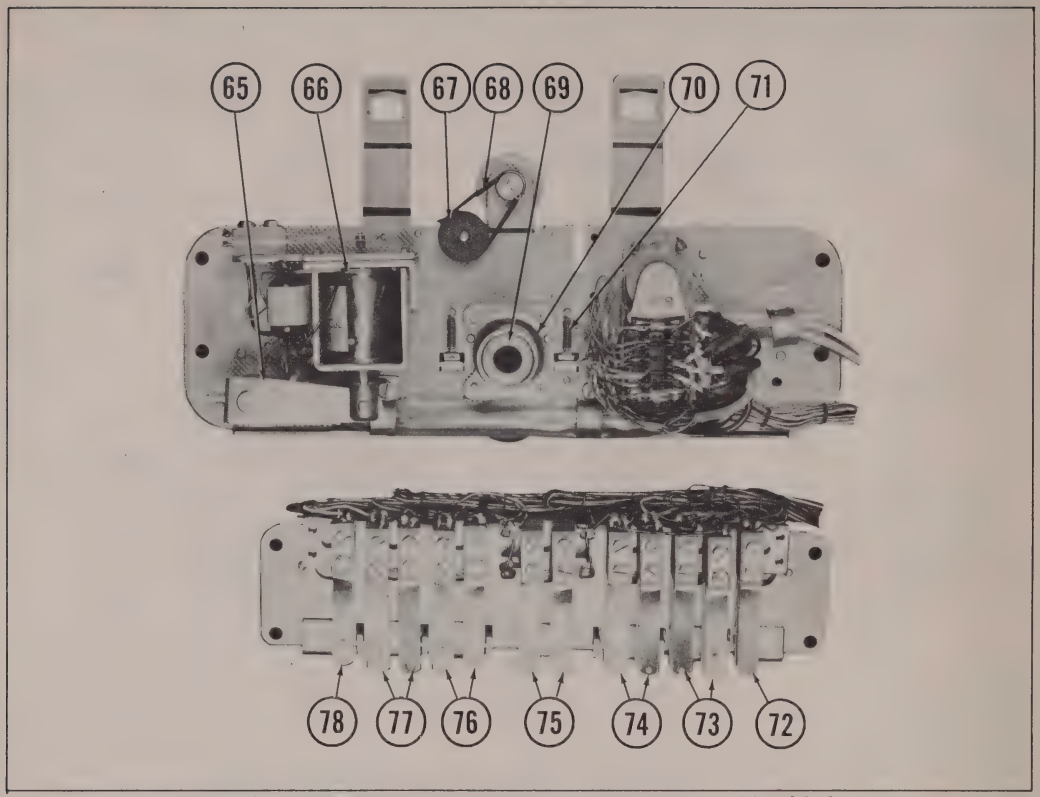


FIG. 4 BOTTOM VIEW OF HEAD PLATE AND SWITCH CONTACTS

the tension should be approximately 45 grams.

Tape Guide

The guide pins, capstan shaft, pressure roller, and heads must be vertical. They are adjusted by the set screws on the pressure lever. The record-playback heads should be approximately 1/64 inch apart. The pressure of the pressure roller is checked at the capstan shaft. It should be from 0.5 to 0.6 kilograms.

Brakes

1. Release the tension from the brake cables.
2. Unfasten the locking spring.
3. Lift and move the compression spring until the braking movement is approximately 1,000 cmg.

NOTE: This measurement is made with an empty reel and spring scale in the unwinding direction. It should be approximately 350 grams.

4. Tighten the cables until the brake magnet is almost loaded.
5. When the magnet attracts, its stroke should be approximately 5/64 inch and the brake jaws, 1/32 inch.
6. The spring of the braking segment should have a pressure of 10 $\pm$ 2 grams.

Fast Winding

Left fast wind lever (53) and right fast wind lever (56) of fast wind wheels (32) and (43) are adjusted by moving the set screws so the wheels move when the magnet attracts them. Fast wind wheel (32) must be pulled between the drive pulley and the top of the clutch when a load is put on the clutch. Bend the retaining clip to adjust the restoring spring. The restoring spring pulls fast wind wheel (32) away from the clutch and drive pulley when the magnet is de-energized.

Tape Speed

A stroboscopic disc, placed on the capstan shaft should indicate 60 impulses per second at 3 3/4 and 7 1/2 ips.

Head Current Adjustment

1. Connect an AC voltmeter across the Record/Play head.
2. Adjust C33 for a meter reading of 36 volts if head lead is grey, or 40 volts if head lead is yellow.
3. The voltage across the Erase head should be 55-65 volts.

Recording Level Adjustment

1. Connect a VTVM across the Output (AUSG) socket.
2. Connect a signal generator to the recorder input socket. Adjust the generator for 333 cycles and for a meter reading of 3 volts.
3. Adjust R5 for maximum shadow on Recording Level Indicator (V5).

LUBRICATION

All rotating parts run in self-lubricating sintered bearings. When re-oiling becomes necessary, apply only a few drops of light oil to the bearings. Grease the pivot bearings, beneath the spindle of the motor and the capstan shaft, with Hypoid Viscobil 90 (or equivalent). Sta-Put grease (or Equivalent) is recommended for all other sliding parts.

CLEANING

The record heads, capstan, and pressure roller may accumulate tape-coating residue, which is worn off the tape as it passes these parts. Use a soft cloth and alcohol to clean the pressure roller, capstan, and head surfaces. Never use metal or any other hard material on the heads.

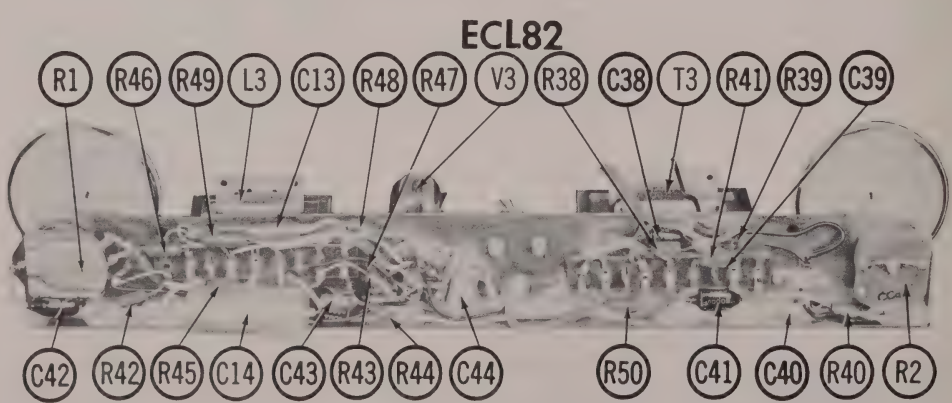
TROUBLE CHART

SYMPTOM	CAUSE	REMEDY
Tape does not move in record or playback, but motor runs.	1. Tape not threaded properly.	1. See "Threading Tape".
	2. Pressure lever(27) jamming.	2. Lubricate pressure lever (27).
Recorder does not run at correct speed when recording or playing back.	1. Tape jams in tape guides.	1. Realign sound channel.
	2. Pressure roller (26) jamming.	2. Clean and lubricate shaft of pressure roller (26).
	3. Faulty motor.	3. Replace motor.
	4. Tape not threaded properly.	4. See "Threading Tape".
Tape jumps from tape guides.	1. Pressure roller (26) and capstan shaft not parallel.	1. Adjust pressure roller (26) shaft or replace.
	2. Dirt or iron oxide on pressure roller (26) or on capstan shaft.	2. Clean pressure roller (26) and capstan shaft.
	3. Sound channel not adjusted correctly.	3. Adjust tape guides.
Right reel spindle sluggish when starting.	1. Too much friction from tape counter.	1. Replace tape counter.
Distorted recording; low volume due to no recording bias.	1. Faulty bias-oscillator tube or oscillator coil.	1. Check tube or coil. Replace if defective.
	2. Defective record-playback head (23) or (28).	2. Replace record-playback head (23) or (28).
No erase.	1. Faulty bias oscillator.	1. Check bias oscillator. Replace if defective.
	2. Faulty erase head (21) or (30).	2. Replace erase head (21) or (30).
Cross talk from other channel.	1. Record or erase-head gap not correct; tape not guided horizontally.	1. Adjust record-playback head (23) or (28) and the tape guides.
Record and erase heads cannot be adjusted to an exact vertical position.	1. Foreign matter under heads.	1. Clean under heads.
High background noise on erase tape.	1. Tape guides or heads magnetized.	1. Demagnetize tape guide or heads.

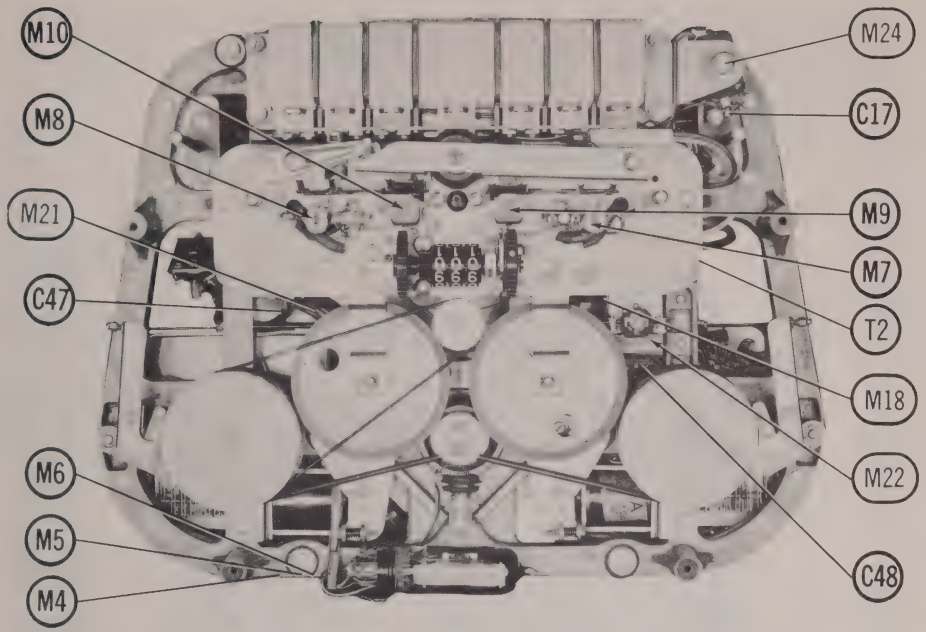
MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1		Modulation Control Knob
1A		Selector Switch Knob
2	56750DU172	Plastic Escutcheon
3	56750EU31	Volume Control Knob
4	56750E46	Pause Key
5	56750E46	Fast Forward Key
6	56750E46	Track One Key
7	56750D76	Stop Key
8	56750E46	Track Two Key
9	56750E46	Fast Rewind Key
10	56750EU31	Tone Control Knob
11	56750DU76	Speed Selector Switch, Complete
12	56813EU1	Counter
13	56750C92	Cover Plate
14	56750E46	Record Key
15	1711-14	Screw
16	56751E70	Right Braking Segment
17	56750E3	Reel Carrier
18	56750EU41	Right Brake Lever, Complete
19	56750F250	Long Counter Belt
20	56750EU111	Brake Cable, Complete
21	56750EU17	Erase Head
22	56750E62	Guide Pin
23	56819FU1	Record-Playback Head
24	56750F321	Adjusting Screw
25	56750FU9	Capstan Bearing
26	56750FU22	Pressure Roller
27	56750E51	Pressure Lever
28	56819FU1	Record-Playback Head
29	56751FU1	Counter Belt Pulley With Spindle
30	56750EU17	Erase Head
30A	56750E334	Trick Switch
31	56750E62	Guide Pin
32	56750EU3	Fast Wind Wheel
33	56751DU61	Brake Magnet
34	1746-105	Circlip
35	56750EU42	Left Brake Lever
36	56750E3	Reel Carrier
37	56751E71	Left Brake Segment
38	1711-14	Screw

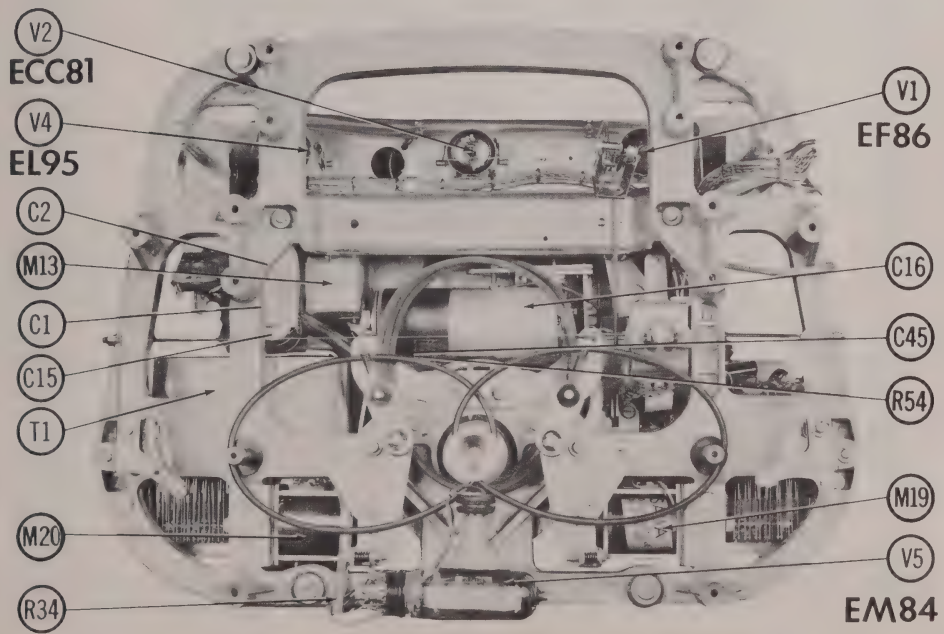
Ref. No.	Part No.	Description
39	56750EU44	Left Fast-Wind Magnet
40	56750F252	Left Wind Belt
41	56750EU96	Left Wind Lever
42	1746-105	Circlip
43	56750EU3	Fast Wind Wheel
44	56750EU92	Right Wind Lever
45	56751E89	Right Wind Belt
46	56750EU45	Right Fast-Wind Magnet
47	56751DU61	Brake Magnet
48	1863-75	Cable Roller
49	1871-50	Tension Spring
50	56751E71	Braking Segment-Left
51	1746-118	Circlip
52	56750FU78	Cable Pin for Switch
53	56750EU96	Left Fast-Wind Lever
54	1711-108	Screw
55	56750E23	Drive Pulley
56	56750EU92	Right Fast-Wind Lever
57	1746-118	Circlip
58	56751E70	Right Brake Segment
59	1871-50	Tension Spring
60		Main Drive Belts (3)
61	56751DU40	Motor
62	56750FU79	Cable Pin for Tumbler
63	56750F279	Bowden Wire — Speed Switch
64	56750F280	Bowden Sheath — Speed Switch
65	56751FU2	Armature Lever
66	56751EU62	Application Magnet
67	56751FU79	Small Belt Pulley
68	56750F251	Short Belt
69	56750FU9	Bearing
70	56750E141	Holder
71	1871-49	Tension Spring
72	56751DU73	Pause Contact
73	56750DU61	Fast Forward Contacts
74	56750DU60	Track I Contacts
75	56750DU59	Stop Contacts
76	56750DU58	Track II Contacts
77	56750DU57	Rewind Contacts
78	56750DU56	Recording Contacts



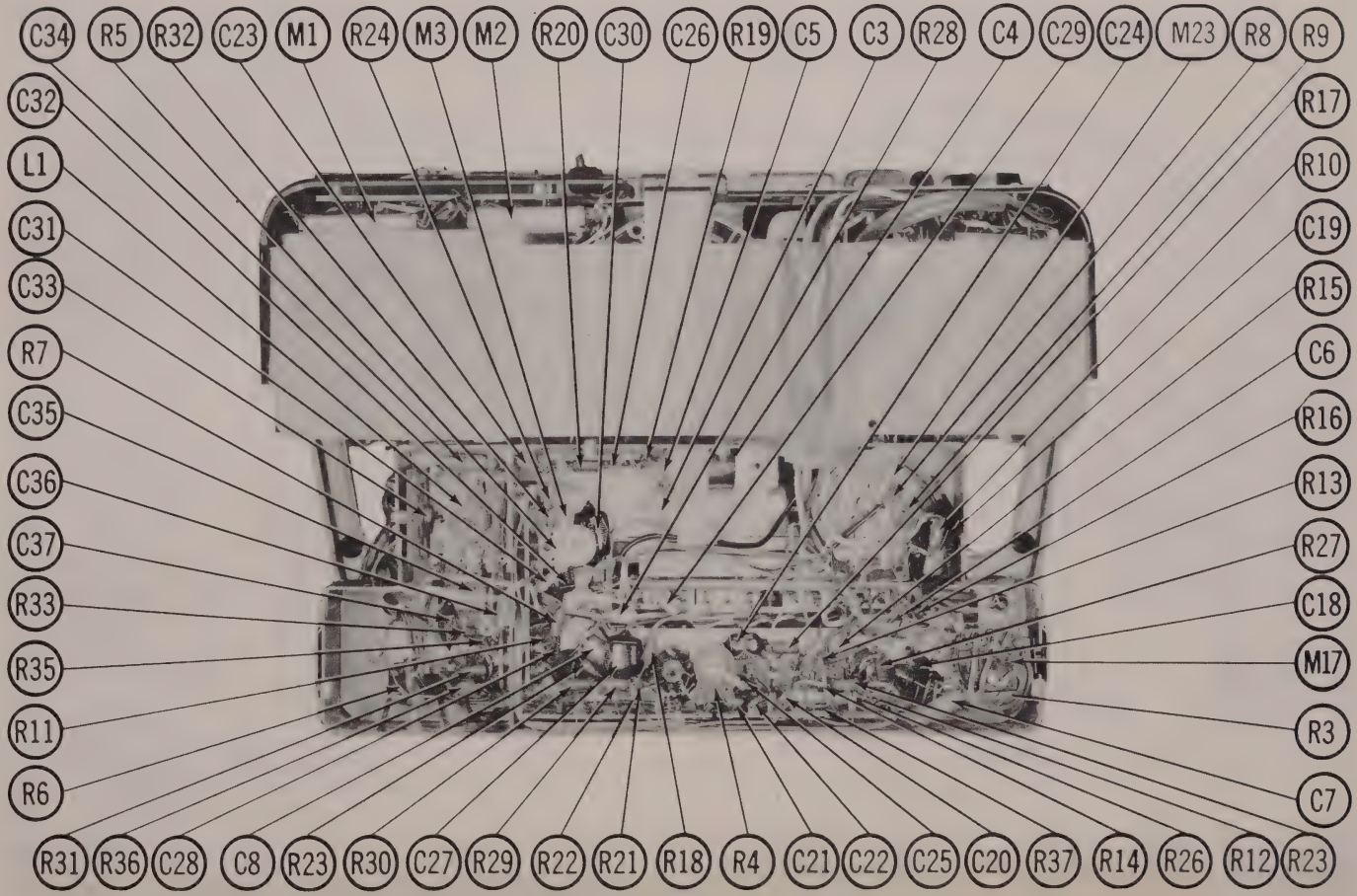
AUDIO OUTPUT CHASSIS BOTTOM VIEW



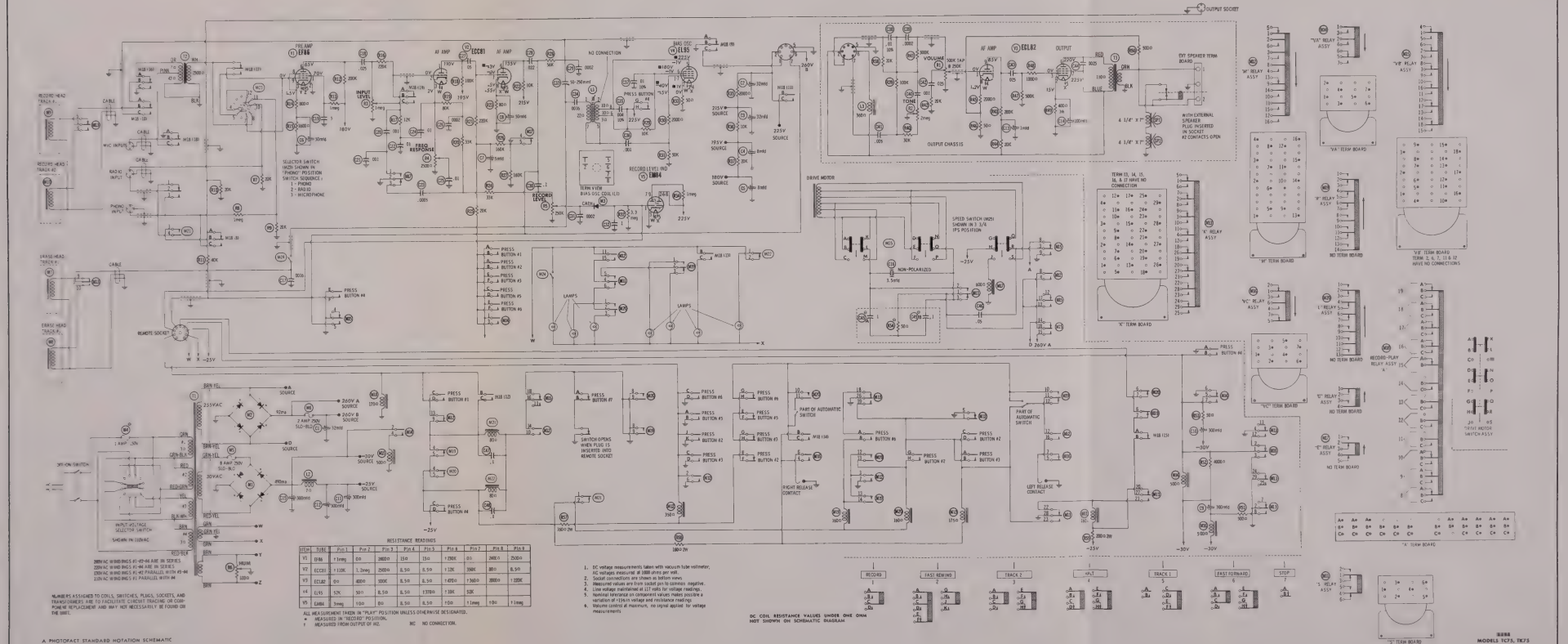
TRANSPORT MECHANISM TOP VIEW WITH ESCUTCHEON REMOVED



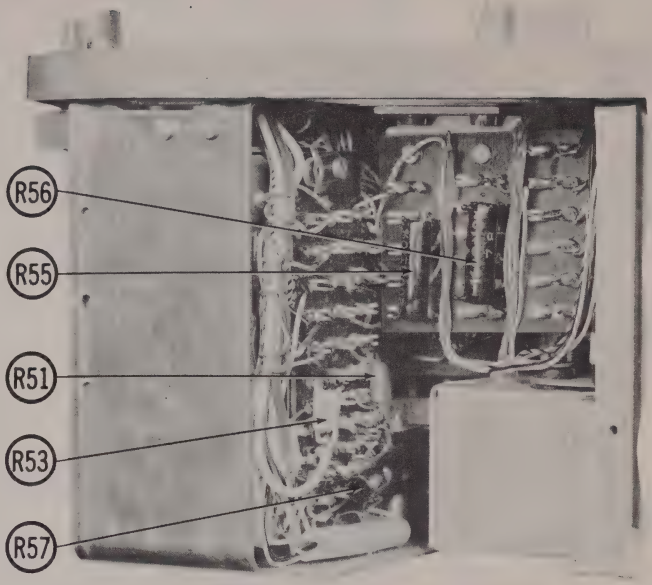
TRANSPORT MECHANISM TOP VIEW WITH HEAD PLATE REMOVED



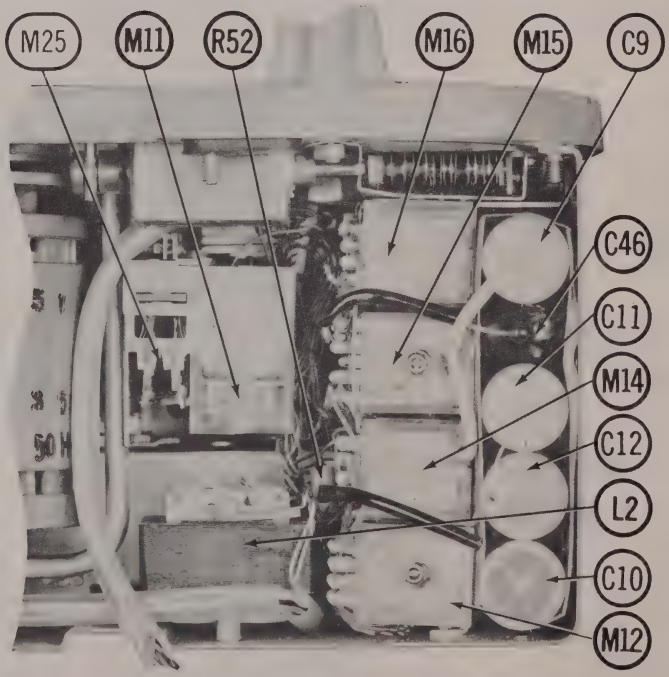
AMP CHASSIS BOTTOM VIEW



ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	EF86	+1meg	0Ω	280Ω	15Ω	15Ω	+250K	0Ω	260Ω	250Ω
V2	ECC81	+110K	1.2meg	250Ω	8.5Ω	8.5Ω	+22K	390Ω	88Ω	8.5Ω
V3	ECC82	0Ω	400Ω	500K	8.5Ω	8.5Ω	+470Ω	+360Ω	2800Ω	+220K
V4	EL95	52K	50Ω	8.5Ω	8.5Ω	+330Ω	+38K	52K		
V5	EM84	3meg	150Ω	8Ω	8.5Ω	8.5Ω	+50Ω	+1meg	+0Ω	+1meg



RELAY ASSEMBLY - REAR VIEW



RELAY ASSEMBLY - FRONT VIEW

AMP PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Preamplifier	EF86	V4	Bias Oscillator	EL95
V2	AF Amplifier	ECC81	V5	Record Level Indicator	EM84
V3	Output	ECL82			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SABA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	32	350	1491-18	PRSI660	BR3035	TC77	TD-30-350	TVA-1610	
C2	32	350	1491-18	PRSI660	BR3035	TC77	TD-30-350	TVA-1610	
C3	32	350	1491-18	PRSI660	BR3035	TC77	TD-30-350	TVA-1610	
C4	8	350	1491-15	PRSI610	BR835	TC61	TD-8-350	TVA-1603	
C5	8	350	1491-15	PRSI610	BR835	TC61	TD-8-350	TVA-1603	
C6	50	12.5	1460-29	XPP-15050	BBR50-25	TT15X50	ML50-15	TE-1160	
C7	5	70	1491-293	SRE150V5	NLW5-150	TT150X5	ML5-50	TE-1404	
C8	50	12.5	1460-29	PRSI265	BBR50-25	TT15X50	ML50-15	TE-1160	
C9	300	30	1490-130	PRSI380	BR2505	TC499	TD-250-50	TVA-1312	
C10	300	30	1490-130	PRSI380	BR2505	TC499	TD-250-50	TVA-1312	
C11	300	30	1490-130	PRSI380	BR2505	TC499	TD-250-50	TVA-1312	
C12	300	30	1490-130	PRSI380	BR2505	TC499	TD-250-50	TVA-1312	
C13	1	350	1491-112	PRSI700	BR145	TC595	TD-2-450	TVA-1701	
C14	100	30	1490-127	PRSI360	BR1005	TC3501	TD-100-50	TVA-1310	
C15	300	30	1490-130	PRSI380	BR2505	TC499	TD-250-50	TVA-1312	
C16	3.5	500NP	1450-201						

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C17	.0016	500V		P688N-0015	D6-152	CUB6D15	6DP-1-152	GEM-6215	6TM-D15
C18	.025	250V		P488N-025		CUB4S22	4DP-2-253	GEM-4125	4TM-S25
C19	.5	250V		P488N-5		CUB4P5		GEM-405	4TM-P5
C20	.001	125V		P288N-001	D6-102	CUB6D1	6DP-1-102	GEM-621	6TM-D1
C21	.001	125V	10%	V84C6D1-10%	DD-102	PM6D1	6DP-1-102	GEM-621	6TM-D1
C22	.01	250V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C23	.0005	500V	5%			1DR5D5	CM-20B-501M	MC245	MS-350
C24	.01	250V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C25	.01	250V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C26	.0002	125V		P688N-00025	D6-201	CUB6T25	CCD-202	B-220	6TM-T25
C27	.05	250V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C28	.022	250V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C29	.0002	125V		P688N-00025	DD-201	CUB6T25	CCD-202	B-220	6TM-T25
C30	.1	250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C31	.0002	125V		P688N-00025	DD-201	CUB6T25	CCD-202	B-220	6TM-T25
C32	.1	250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C33	50-250		#56820-FU2				465		
C34	.0016	500V		P688N-0015	D6-152	CUB6D15	6DP-1-152	GEM-6215	6TM-D15
C35	.004	500V	10%	V84C6D4-10%	D6-402	PM6D4	6DP-1-402	GEM-1624	6TM-D4
C36	.001	500V		P688N-001	D6-102	CUB6D1	6DP-1-102	GEM-621	6TM-D1
C37	.01	500V	10%	V84C6S1-10%		PM6S1	6DP-2-103	GEM-1611	6TM-S1
C38	.01	250V	10%	V84C4S1-10%		PM4S1	6DP-2-103	GEM-1611	4TM-S1
C39	.0002	125V		P688N-00025	D6-201	CUB6T25	CCD-102	B-220	6TM-T25
C40	.001	125V		P288N-001	D6-102	CUB6D1	6DP-1-102	GEM-621	6TM-D1
C41	.005	250V		P488N-005	D6-502	CUB6D5	6DP-1-502	GEM-625	6TM-D5
C42	.025	250V		P488N-025		CUB4S22	4DP-2-253	GEM-4125	4TM-S25
C43	.025	250V		P488N-025		CUB4S22	4DP-2-253	GEM-4125	4TM-S25

FIXED CAPACITORS (cont)

ITEM No.	RATING		REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C44	.0025	500V	56750-F293 *	P688N-0022	D6-252	CUB6D3	6DP-1-252	GEM-6225	6TM-D25
C45A	.1	250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
B	.1	250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C46	.05	500V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5
C47	.1	250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	6TM-P1
C48	.1	250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	6TM-P1

Saba Part Number.

* Includes R54

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SABA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	lin	56821D3	ABT-65				Volume
	250K Tap							
B	Shaft			AK-29				
R2A	2meg	lin	5675ID100	AB-77				Tone
B	Shaft			AK-29				
R3	1meg		56821E1					Input Level
R4	2500Ω		56821F4					Frequency Response
R5	250K		1590-51					Record Level
R6	100Ω		56821F10					Hum Control

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R7	20K	
R8	1meg	
R9	20K	
R10	20K	
R11	40K	
R12	200K	
R13	1meg	
R14	800Ω	
R15	1600Ω	
R16	220K	
R17	12K	
R18	100K	
R19	80K	
R20	33K	
R21	220K	
R22	10K	
R23	80Ω	

ITEM No.	RATING	REMARKS
R24	33K	
R25	20K	
R26	160K	
R27	160K	
R28	56K	
R29	10K	
R30	2000Ω	
R31	50K	
R32	3.3meg	
R33	50Ω	
R34	1meg	
R35	2000Ω	
R36	10K	
R37	20K	
R38	10K	
R39	100K	
R40	30K	

ITEM No.	RATING	REMARKS
R41	500K	
R42	20K	
R43	200K	
R44	20K	
R45	2000Ω	
R46	50Ω	
R47	500K	
R48	1000Ω	
R49	400Ω 1W	
R50	500Ω	
R51	500Ω	
R52	4000Ω	
R53	50Ω	
R54	50Ω	#56750-F293 *
R55	200Ω 2W	
R56	160Ω 2W	
R57	160Ω 2W	

Saba Part Number.

* Includes C45.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA SABA PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Bias Osc.	56750FU130						

AMP PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	RATINGS: DC RES.	RATINGS: INDUCTANCE @ CURRENT 1000 ~	REPLACEMENT DATA: SABA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L2	.500A	7Ω	.3 Hy.	56932FU5						
L3	.070A	360Ω	11 Hy.	1651EU58						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA: SABA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
	PRI. 1	PRI. 3	SEC. 1							
T1	110V	20V	255V @ .090A	56939DU20						
	PRI. 2	PRI. 4								
	20V	110V								
	SEC. 2	SEC. 3	SEC. 4							
	30V @ .500A	6.3VCT @ 3.2A	6.3V @ .6A							

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO PRI.	TURNS RATIO SEC.	REPLACEMENT DATA: SABA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	1	20	56750F296						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA: SABA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T3	3100Ω	6-8Ω	1652FU43	24S88 ①	A-2902 ①	AU-607 ①	A-2203 ①	24S88 ①		① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE: SIZE	TYPE: FIELD	TYPE: V. C. IMP.	REPLACEMENT DATA: SABA PART No.	QUAM PART No.	NOTES
SP1	4 1/4" x 7"	PM	3-4Ω	1678CU60		
SP2	4 1/4" x 7"	PM	3-4Ω	1678CU60		

RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: SABA PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.092A	SSFB250C100 ①					① Selenium Type
M2	.490A	SSFB30C600 ①					
M3		SSFE25C5 ①					

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: SABA PART No. FUSE	SABA PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M4	3/16" x 3/4"	1A 150V S/B	①					
	3/16" x 3/4"	.5A 250V S/B	1601-54 ②					
M5	3/16" x 3/4"	.8A 250V S/B	1601-55					
M6	3/16" x 3/4"	.2A 250V S/B	1601-52					

① Used when line voltage is 110-130V. ② Used when line voltage is 220-240V.

MISCELLANEOUS

ITEM No.	PART NAME	SABA PART No.	NOTES
M7	Erase Head	56750EU17	#1 Track
M8	Erase Head	56750EU17	#2 Track
M9	Record-Playback Head	56819FU1	#1 Track
M10	Record-Playback Head	56819FU1	#2 Track
M11	"S" Relay	56750F286	Direction of Rotation
M12	"M" Relay	56750F287	Motor
M13	"K" Relay	56750F288	Head
M14	"VA" Relay	56750F289	Delayed Action
M15	"VB" Relay	56750F290	Motor Braking
M16	"VC" Relay	56750F291	Delayed Action
M17	"E" Relay	56750F292	Speed Compensation
M18	"A" Relay	56750EU73	Recording
	"A" Relay	5675lEU8	Recording #296501
M19	"R" Relay	56750EU45	Fast Wind (Right)
M20	"L" Relay	56750EU44	Fast Wind (Left)
M21	"G" Relay	5675lEU62	Application
M22	"B" Relay	5675lDU61	Halt (Brake)
M23	Switch	56750DU105	Input Channel
M24	Switch	56750E334	Trick
M25	Switch	56750DU76	Speed

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	56750U164	For Lock
Window	56750FU173	
Cabinet	56750U268	Less Lid
Cabinet Lid	56750CU178	
Handle	56816DU1	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE®

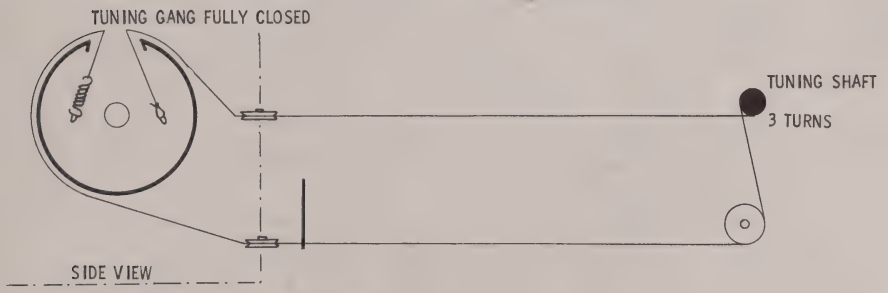
SONY
MODEL TFM-151

SONY
MODEL TFM-151

SONY
MODEL TFM-151

TRADE NAME	Sony Model TFM-151		
IMPORTER	Delmonico International Corp., 42-24 Orchard Street, Long Island City 1, N. Y.		
TYPE SET	Battery Operated Transistorized FM-AM Portable Receiver		
POWER SUPPLY	6 Volts DC	RATING	8MA @ 6 Volts DC (No Signal, Minimum Volume) 15MA @ 6 Volts DC (Signal, Normal Volume)
TUNING RANGE	BROADCAST 535-1605KC	FREQ. MOD.	88-108MC

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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JF613

SET 483 FOLDER 15

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3 ..... GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544
A4, A6 ..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A13, A14, A15 ..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2515, 2515, 2522, 2523, 2525, 2537

AM ALIGNMENT - SELECTOR BUTTON PRESSED DOWN

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to Base of AM Converter. Low side to chassis.	455KC (400∿ Mod.)	(AM) Tuning gang fully open	Across voice coil	A1, A2, A3	Adjust for maximum output.
2.	Loop	1600KC	1600KC	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	600KC	600KC	"	A5	"
4.	"	1400KC	Tune to 1400KC signal	"	A6	Adjust for maximum output while rocking tuning gang.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM - SELECTOR BUTTON PULLED UP

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side thru .001mfd to Base of FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference	DC probe thru 100K to point (A). Common to point (B).	A7, A8, A9, A10, A11	Adjust for maximum deflection.
6.	"	"	"	DC probe to point (C). Common to point (B).	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE - SELECTOR BUTTON PULLED UP

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side thru .001mfd to Base of FM Mixer. Low side to chassis.	10.7MC (450KC swp)	(FM) Point of non-interference	Vert. Amp. thru 27K to point (A). Low side to chassis.	A7, A8, A9, A10, A11	Adjust for maximum gain and symmetry of response similar to Fig. 1.
6.	"	"	"	Vert. Amp. to point (C). Low side to chassis.	A12	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT - SELECTOR BUTTON PULLED UP

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals with 120Ω in each lead.	108MC (Unmod.)	(FM) 108MC	DC probe thru 100K to point (A). Common to point (B).	A13	Adjust for maximum deflection.
8.	"	96MC	96MC	"	A14, A15	"

FIG. 1

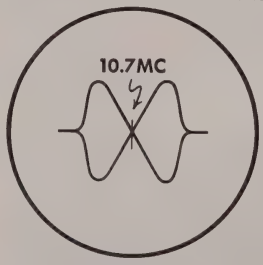
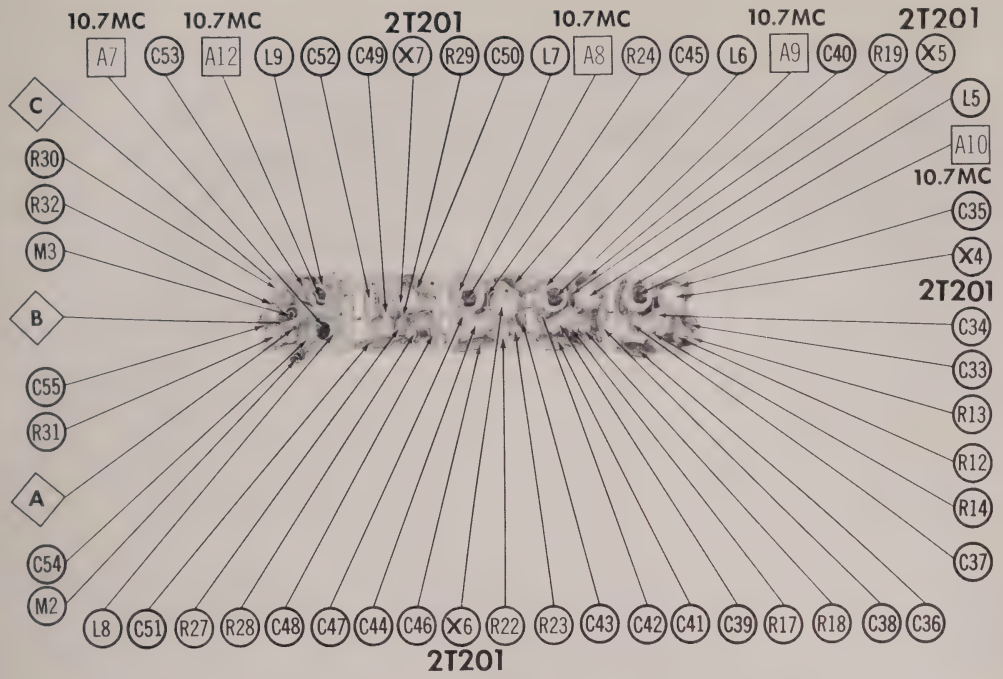
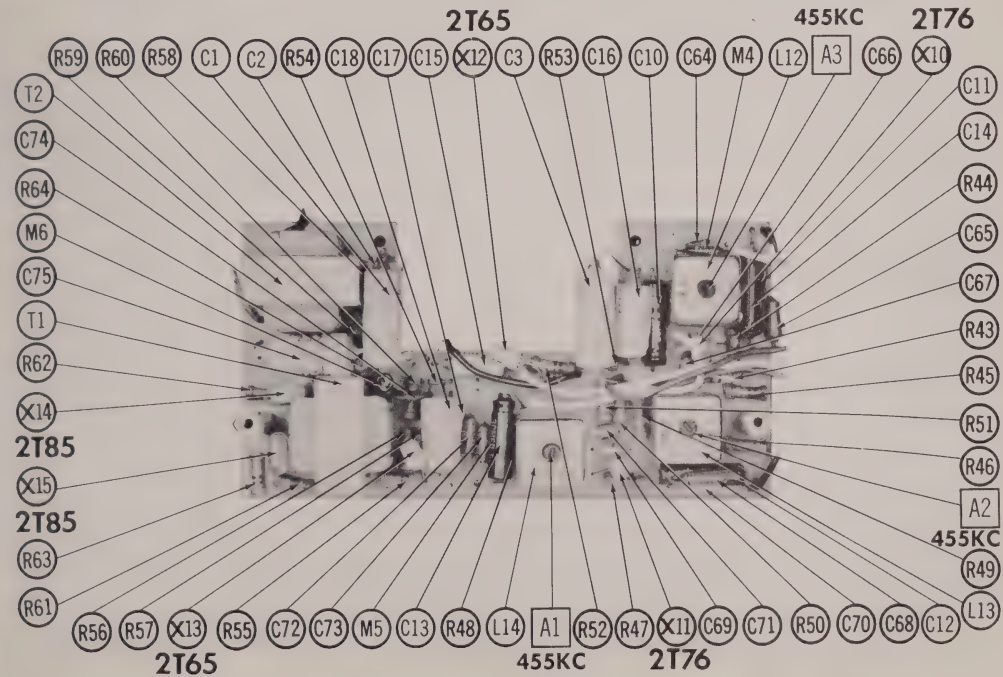


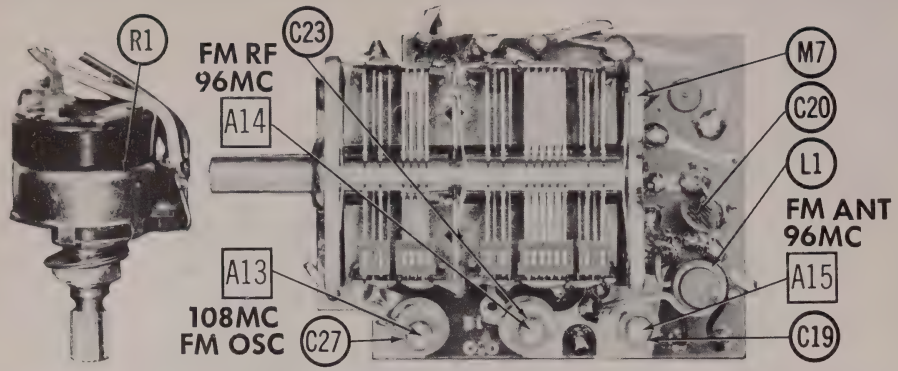
FIG. 2



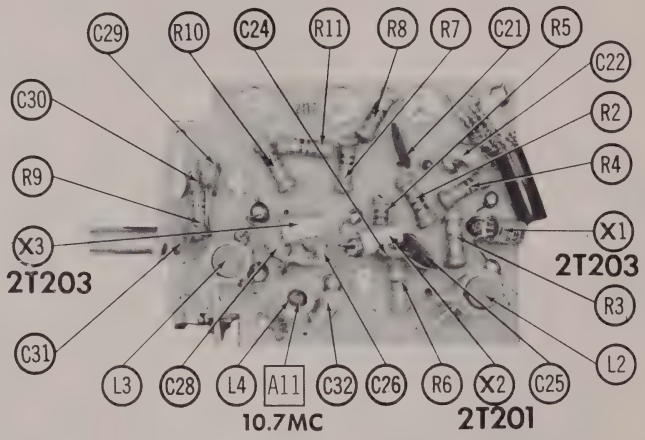
FM IF SUBCHASSIS



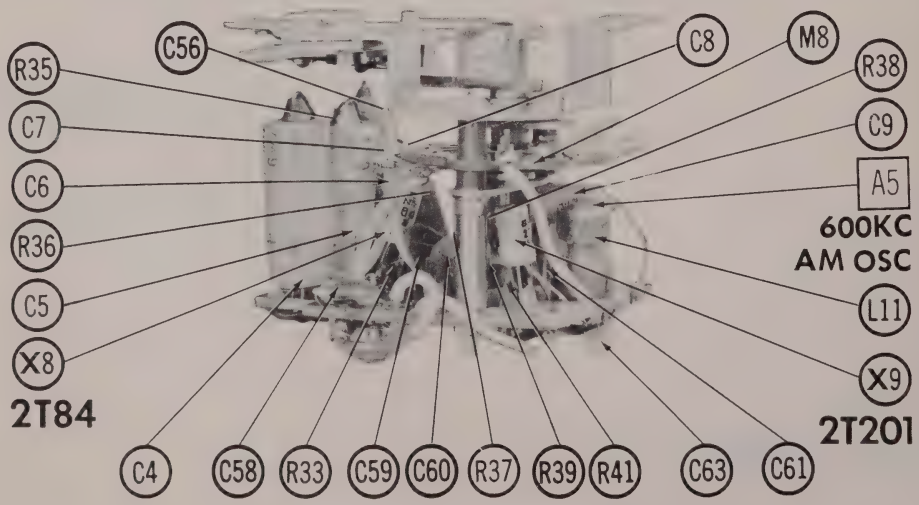
AM-AUDIO CHASSIS



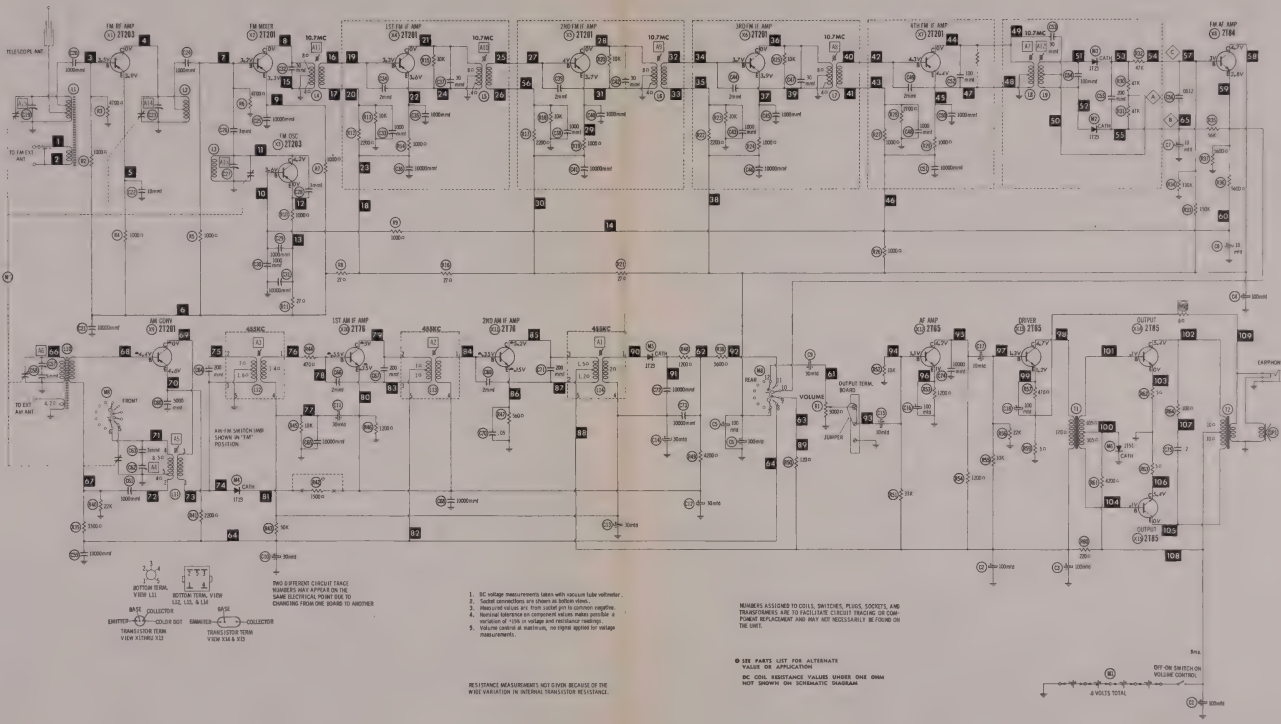
FM RF SUBCHASSIS - BOTTOM VIEW



FM RF SUBCHASSIS - TOP VIEW



AM RF SUBCHASSIS


FM RF AMP
FM MIXER
FM OSC
1ST FM IF AMP
2ND FM IF AMP
3RD FM IF AMP
4TH FM IF AMP
FM AF AMP
AM CONV
1ST AM IF AMP
2ND AM IF AMP
AF AMP
DRIVER
OUTPUT
OUTPUT
OUTPUT
10.7MC
455KC
TELESCOPIC ANT
TO FM EXT ANT
TO EXT AM ANT
AM-FM SWITCH (AM) SHOWN IN "FM" POSITION
VOLUME
OUTPUT TERM. BOARD
JUMPER
EARPHONE JACK
OFF-ON SWITCH ON VOLUME CONTROL
6 VOLTS TOTAL
BOTTOM TERM. VIEW L11
BOTTOM TERM. VIEW L12, L13, & L14
TRANSISTOR TERM VIEW X17-19-21-23
TRANSISTOR TERM VIEW X24 & X25
TWO DIFFERENT CIRCUIT TRACE NUMBERS MAY APPEAR ON THE SAME ELECTRICAL POINT DUE TO CHANGING FROM ONE BOARD TO ANOTHER
1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.
RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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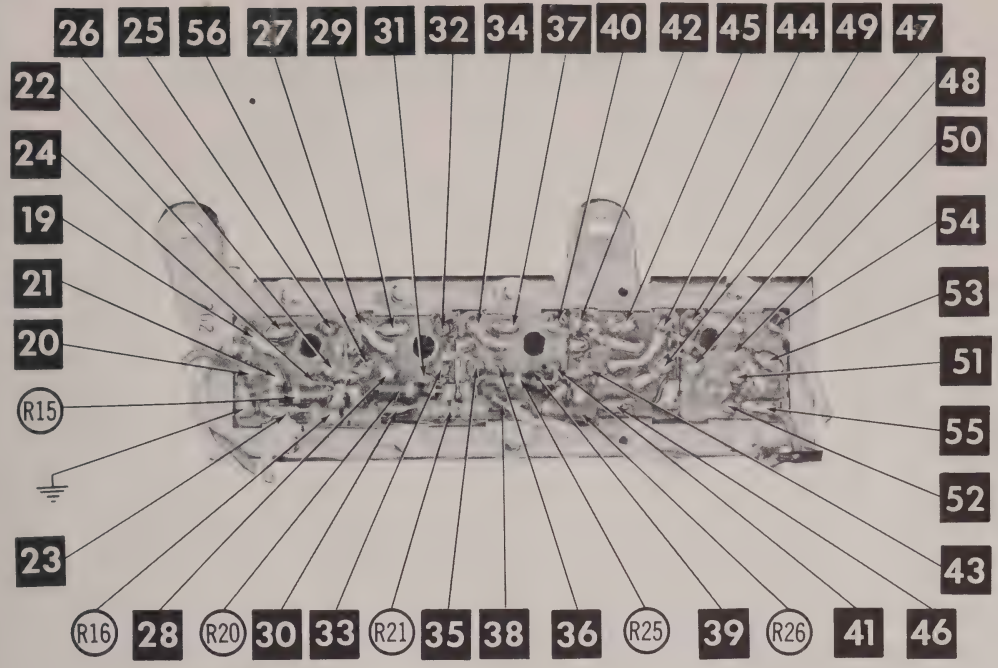
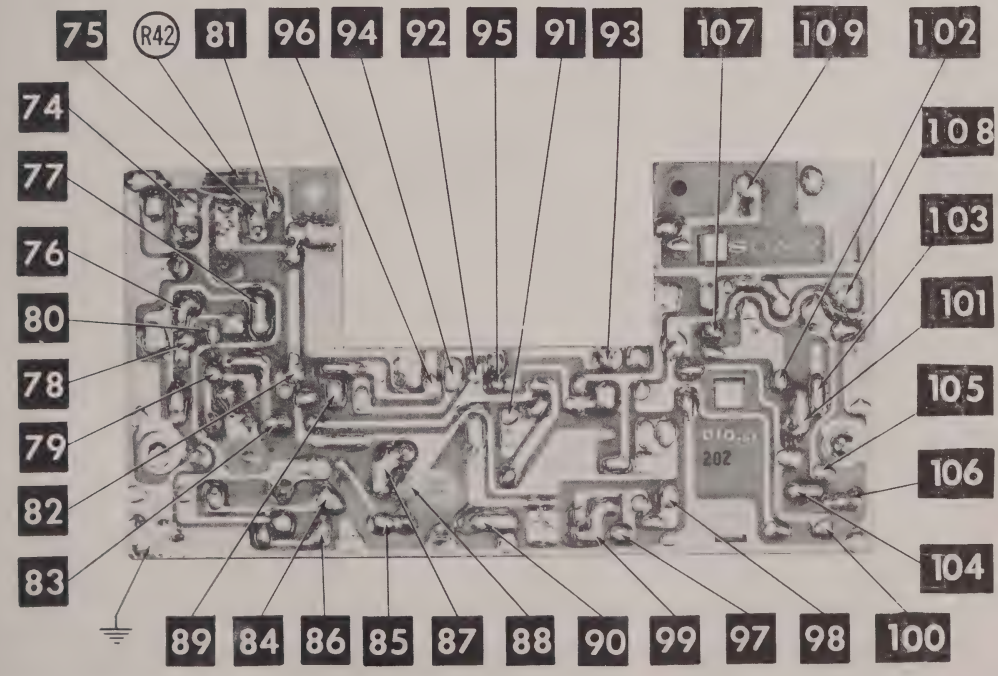
SONY
MODEL TFM-151



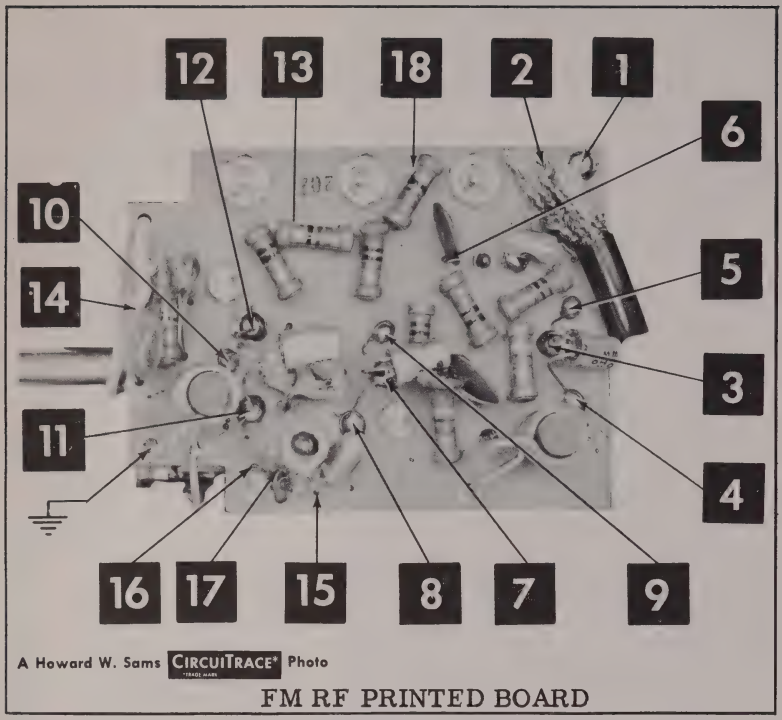
A Howard W. Sams CIRCUITRACE* Photo

FM IF PRINTED BOARD

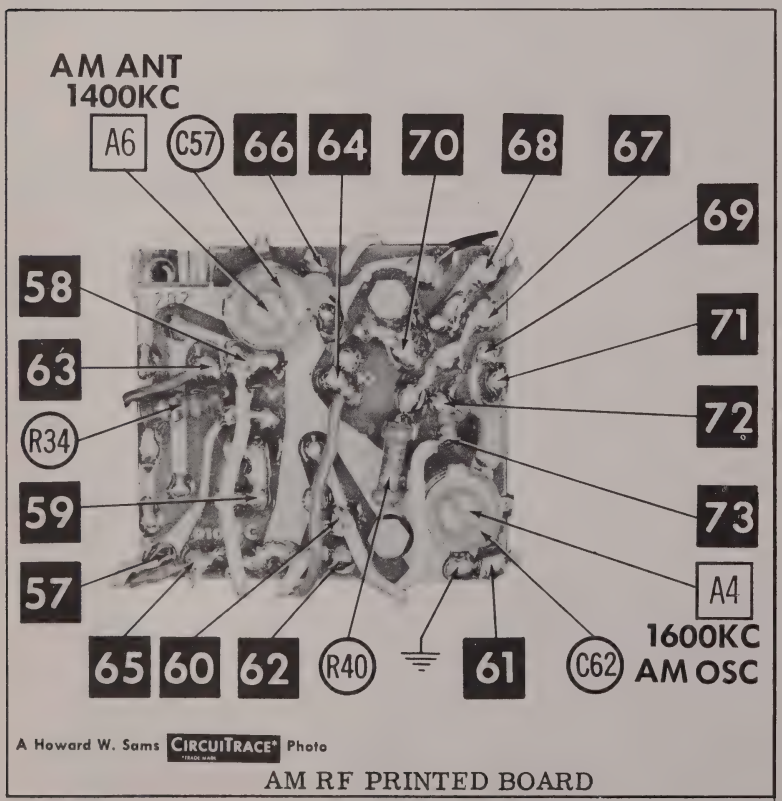


A Howard W. Sams CIRCUITRACE* Photo

AM-AUDIO PRINTED BOARD



FM RF PRINTED BOARD



AM RF PRINTED BOARD

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2T203	FM RF Amplifier					PNP
X2	2T201	FM Mixer					PNP
X3	2T203	FM Oscillator					PNP
X4	2T201	FM IF Amplifier					PNP
X5	2T201	FM IF Amplifier					PNP
X6	2T201	FM IF Amplifier					PNP
X7	2T201	FM IF Amplifier					PNP
X8	2T84	FM AF Amplifier					NPN
X9	2T201	AM Converter					PNP
X10	2T76	AM IF Amplifier					NPN
X11	2T76	AM IF Amplifier					NPN
X12	2T65	AF Amplifier	2N438			2N214	NPN
X13	2T65	Driver	2N438			2N214	NPN
X14	2T85	Output					
X15	2T85	Output					

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	SONY PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	100	6		SRE6V100	NLW100-6	TT6X100	ML100-6	TE-1102	
C2	100	6		SRE6V100	NLW100-6	TT6X100	ML100-6	TE-1102	
C3	100	6		SRE6V100	NLW100-6	TT6X100	ML100-6	TE-1102	
C4	100	6		SRE6V100	NLW100-6	TT6X100	ML100-6	TE-1102	
C5	100	6		SRE6V100	NLW100-6	TT6X100	ML100-6	TE-1102	
C6	100	6		SRE6V100	NLW100-6	TT6X100	ML100-6	TE-1102	
C7	10	6		XPP-6010	NLW10-6	TT6X10	ML10-6	TE-1087	
C8	10	6		XPP-6010	NLW10-6	TT6X10	ML10-6	TE-1087	
C9	30	6		XPP-6030	NLW30-6	TT6X30	ML30-6	TE-1092	
C10	30	6		XPP-6030	NLW30-6	TT6X30	ML30-6	TE-1092	
C11	30	6		XPP-6030	NLW30-6	TT6X30	ML30-6	TE-1092	
C12	30	6		XPP-6030	NLW30-6	TT6X30	ML30-6	TE-1092	
C13	30	6		XPP-6030	NLW30-6	TT6X30	ML30-6	TE-1092	
C14	30	6		XPP-6030	NLW30-6	TT6X30	ML30-6	TE-1092	
C15	10	6		XPP-6010	NLW10-6	TT6X10	ML10-6	TE-1087	
C16	100	3		XPP-3100	NLW100-3	TT6X100	ML100-3	TE-1059.5	
C17	10	6		XPP-6010	NLW10-6	TT6X10	ML10-6	TE-1087	
C18	100	3		XPP-3100	NLW100-3	TT6X100	ML100-3	TE-1059.5	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C19								
C20	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C21	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C22	10		SI 10	D6-100	L10Q1	CCD-100	GP410	10TS-Q10
C23								
C24	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C25	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C26	3		NPO-SI 3.0	D6-030	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C27								
C28	3		NPO-SI 3.0	D6-030	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C29	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C30	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C31	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C32	30		NPO-SI 30	TCZ-30	C10Q3C	CCTO-300	CNO-433	10TCC-Q30
C33	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C34	2		NPO-SI 2.0	TCZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C35	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C36	10000		C80V103AM	DM-103	BYA10S1		GP110	
C37	30		NPO-SI 30	TCZ-30	C10Q3C	CCTO-300	CNO-433	10TCC-Q30
C38	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C39	2		NPO-SI 2.0	TCZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C40	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C41	10000		C80V103AM	DM-103	BYA10S1		GP110	
C42	30		NPO-SI 30	TCZ-30	C10Q3C	CCTO-300	CNO-433	10TCC-Q30
C43	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP 210	5HK-D10
C44	2		NPO-SI 2.0	TCZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C45	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C46	10000		C80V103AM	DM-103	BYA10S1		GP110	
C47	30		NPO-SI 30	TCZ-30	C10Q3C	CCTO-300	CNO-433	10TCC-Q30
C48	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C49	2		NPO-SI 2.0	TCZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C50	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C51	10000		C80V103AM	DM-103	BYA10S1		GP110	
C52	100		NPO-SI 100	TCZ-100	L10T1	CCD-101	GP310	10TS-T10
C53	30		NPO-SI 30	TCZ-30	C10Q3C	CCTO-300	CNO-433	10TCC-Q30
C54	100		NPO-SI 100	TCZ-100	L10T1	CCD-101	GP310	10TS-T10
C55	200		NPO-SI 220	DTZ-200	L10T2	CCD-201	GP320	10TS-T20
C56	.0012		P1084CM-0012	DD-122	L10D12	CCD-122	GP212	10TS-D12
C57								
C58	5		NPO-SI 5.0	TCZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C59	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C60	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C61	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C62								
C63	3		NPO-SI 3.0	D6-030	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C64	200		NPO-SI 220	TCZ-200	L10T2	CCD-201	GP320	10TS-T20
C65	10000		SI 10000	DD-103	BYA10S1	CCD-103	GP110	5HK-S10

PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C66	2		NPO-SI 2.0	TCZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C67	200		NPO-SI 220	TCZ-200	L10T2	CCD-201	GP320	10TS-T20
C68	10000		SI 10000	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C69	2		NPO-SI 2.0	TCZ-2R2	C10V2C	CCTO-2R2	GP522	10TCC-V22
C70	.05 250V		V84C4S5	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C71	200		NPO-SI 220	TCZ-200	L10T2	CCD-201	GP320	10TS-T20
C72	10000		SI 10000	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C73	10000		SI 10000	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C74	10000		SI 10000	DD-103	BYA10S1			4EP-P20
C75	.2 250V				STM4S22			

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SONY PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	½	34.01					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	1000Ω	
R3	4700Ω	
R4	1000Ω	
R5	1000Ω	
R6	4700Ω	
R7	1000Ω	
R8	27Ω	
R9	1000Ω	
R10	1000Ω	
R11	27Ω	
R12	2200Ω	
R13	10K	
R14	1000Ω	
R15	10K	
R16	27Ω	
R17	2200Ω	
R18	10K	
R19	1000Ω	
R20	10K	
R21	27Ω	
R22	2200Ω	

ITEM No.	RATING	REMARKS
R23	10K	
R24	1000Ω	
R25	10K	
R26	1000Ω	
R27	1000Ω	
R28	2700Ω	
R29	1000Ω	
R30	47K	
R31	47K	
R32	47K	
R33	150K	
R34	330K	
R35	56K	
R36	5600Ω	
R37	5600Ω	
R38	5600Ω	
R39	3300Ω	
R40	22K	
R41	2200Ω	
R42	1500Ω	
R43	50K	

ITEM No.	RATING	REMARKS
R44	470Ω	
R45	10K	
R46	1200Ω	
R47	560Ω	
R48	1200Ω	
R49	4200Ω	
R50	120Ω	
R51	33K	
R52	10K	
R53	1200Ω	
R54	1200Ω	
R55	10K	
R56	22K	
R57	470Ω	
R58	6Ω	
R59	5Ω	
R60	220Ω	
R61	4200Ω	
R62	5Ω	
R63	5Ω	
R64	100Ω	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		SONY PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Antenna Trans.							
L2	FM RF Coil							
L3	FM Osc. Coil							
L4	1st FM IF Trans.							
L5	2nd FM IF Trans.							
L6	3rd FM IF Trans.							
L7	4th FM IF Trans.							
L8	Discriminator Primary							
L9	Discriminator Secondary							
L10	Loopstick							
L11	AM Osc. Coil							
L12	1st AM IF Trans.							
L13	2nd AM IF Trans.							
L14	3rd AM IF Trans.							

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SONY PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1	1	TR74T1						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	SONY PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	320Ω CT	3-4Ω	TR74T2							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SONY PART No.	QUAM PART No.	
SP1	4" x 6"	PM	3-4Ω	1496	46A1	

BATTERIES

ITEM No.	VOLTAGE	SONY PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V	*		230 *		A100 *		M-13R *	* 4 Required.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		SONY PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1T23		1N60	1N60	1N60	Discriminator (Pigtail)
M3	1T23		1N60	1N60	1N60	Discriminator (Pigtail)
M4	1T23		1N60	1N60	1N60	AM AGC & Overload (Pigtail)
M5	1T23		1N60	1N60	1N60	AM Detector (Pigtail)
M6	1T51					Output Bias

MISCELLANEOUS

ITEM No.	PART NAME	SONY PART No.	NOTES
M7 M8	Tuning Gang Switch		5 Gang Band Selector

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

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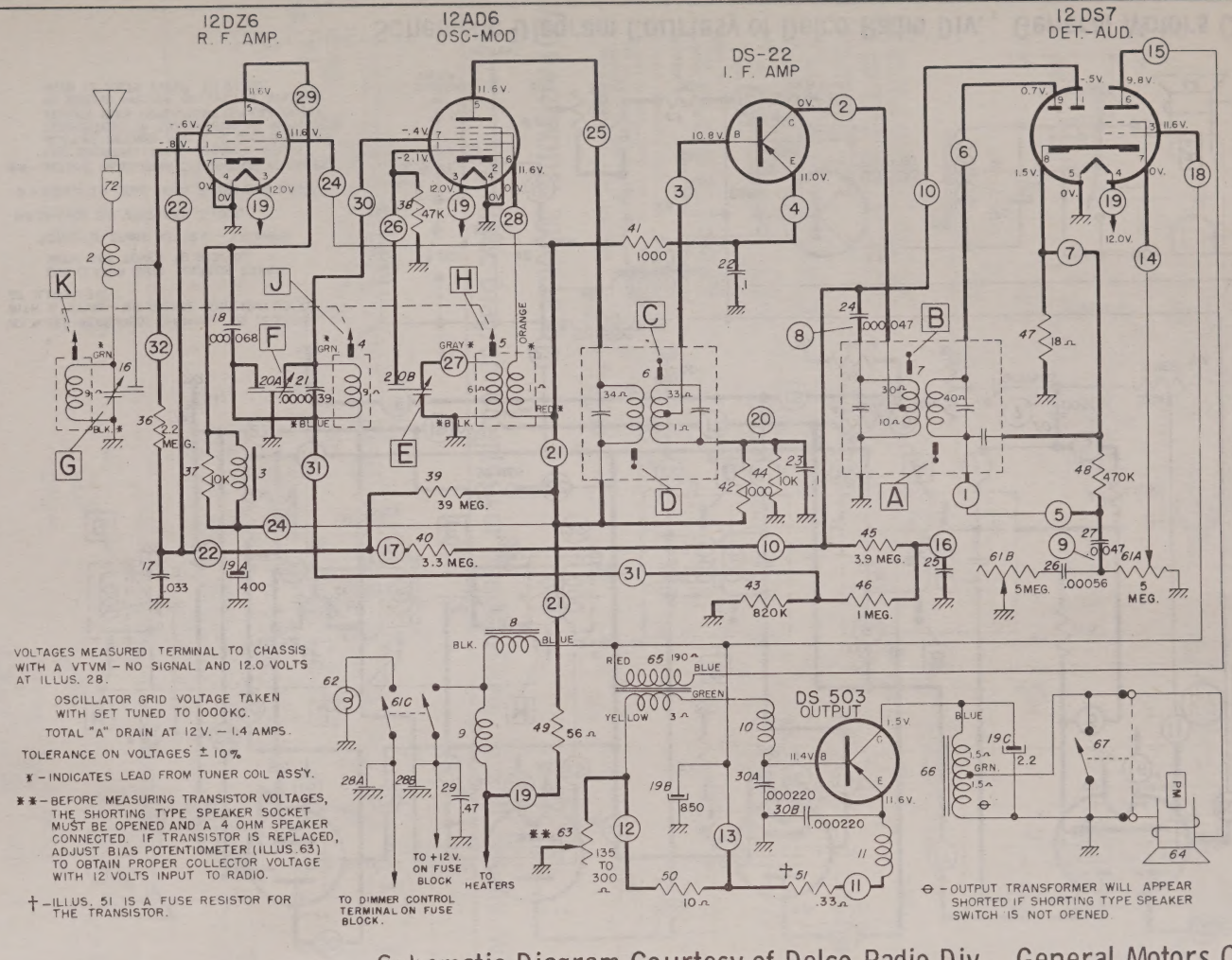
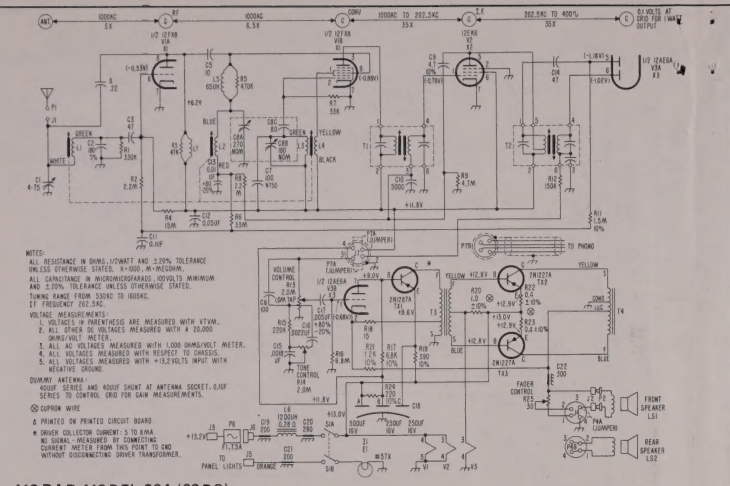
CHEVROLET (TRUCK) MODEL 988080

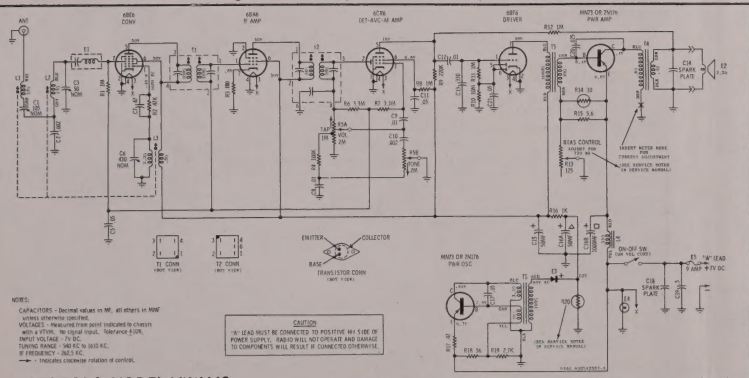

12DZ6
R. F. AMP.
12AD6
OSC-MOD
DS-22
I. F. AMP
12DS7
DET.-AUD.
DS 503
OUTPUT
TO +12 V. ON FUSE BLOCK
TO HEATERS
TO DIMMER CONTROL TERMINAL ON FUSE BLOCK.
VOLTAGES MEASURED TERMINAL TO CHASSIS WITH A VTVM – NO SIGNAL AND 12.0 VOLTS AT ILLUS. 28.
OSCILLATOR GRID VOLTAGE TAKEN WITH SET TUNED TO 1000KC.
TOTAL "A" DRAIN AT 12 V. – 1.4 AMPS.
TOLERANCE ON VOLTAGES ± 10%
* – INDICATES LEAD FROM TUNER COIL ASS'Y.
** – BEFORE MEASURING TRANSISTOR VOLTAGES, THE SHORTING TYPE SPEAKER SOCKET MUST BE OPENED AND A 4 OHM SPEAKER CONNECTED. IF TRANSISTOR IS REPLACED, ADJUST BIAS POTENTIOMETER (ILLUS. 63) TO OBTAIN PROPER COLLECTOR VOLTAGE WITH 12 VOLTS INPUT TO RADIO.
† – ILLUS. 51 IS A FUSE RESISTOR FOR THE TRANSISTOR.
⊖ – OUTPUT TRANSFORMER WILL APPEAR SHORTED IF SHORTING TYPE SPEAKER SWITCH IS NOT OPENED.

Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.



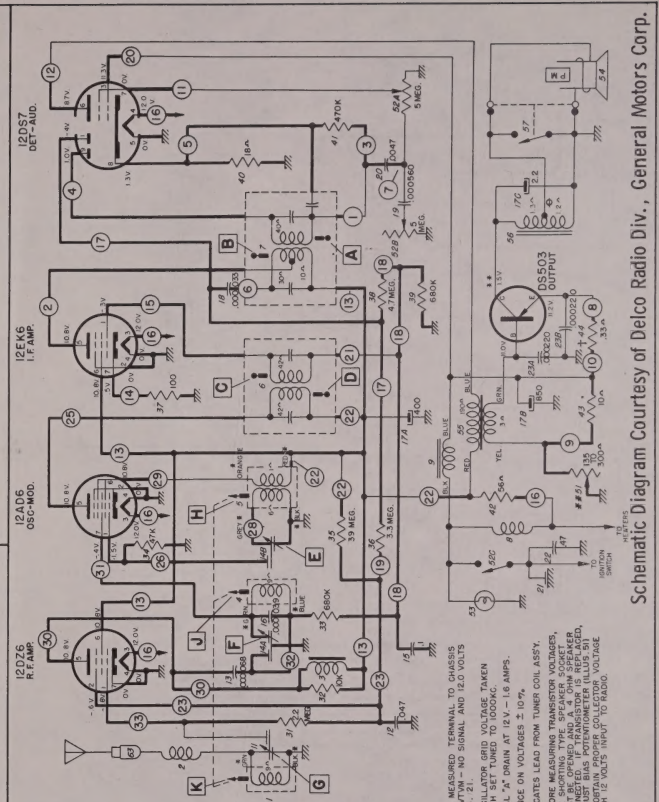
MOPAR MODEL 304 (03BS)

Schematic Diagram Courtesy of Bendix Radio, Div. of Bendix Aviation Corp.



MOTOROLA MODEL VWM60

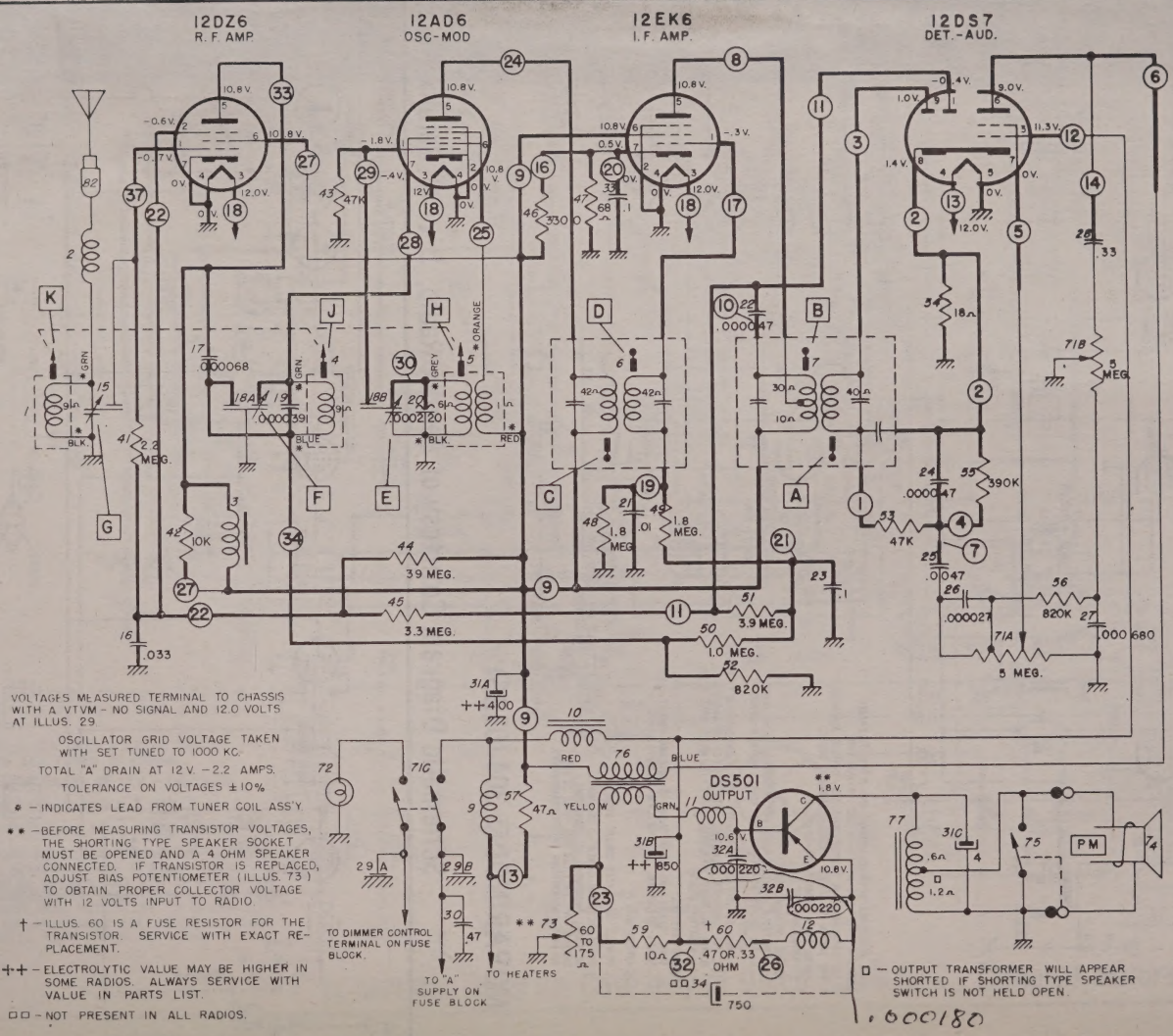
Schematic Diagram Courtesy of Motorola Inc.



STUDEBAKER MODEL AC-2977

Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.

CHEVROLET MODEL 988276


12DZ6
R. F. AMP.
12AD6
OSC-MOD
12EK6
I. F. AMP.
12DS7
DET.-AUD.
DS501
OUTPUT
PM
TO DIMMER CONTROL TERMINAL ON FUSE BLOCK.
TO "A" SUPPLY ON FUSE BLOCK
TO HEATERS
VOLTAGES MEASURED TERMINAL TO CHASSIS WITH A VTVM - NO SIGNAL AND 12.0 VOLTS AT ILLUS. 29.
OSCILLATOR GRID VOLTAGE TAKEN WITH SET TUNED TO 1000 KC.
TOTAL "A" DRAIN AT 12 V. - 2.2 AMPS.
TOLERANCE ON VOLTAGES ± 10%
* - INDICATES LEAD FROM TUNER COIL ASS'Y.
** - BEFORE MEASURING TRANSISTOR VOLTAGES, THE SHORTING TYPE SPEAKER SOCKET MUST BE OPENED AND A 4 OHM SPEAKER CONNECTED. IF TRANSISTOR IS REPLACED, ADJUST BIAS POTENTIOMETER (ILLUS. 73) TO OBTAIN PROPER COLLECTOR VOLTAGE WITH 12 VOLTS INPUT TO RADIO.
† - ILLUS. 60 IS A FUSE RESISTOR FOR THE TRANSISTOR. SERVICE WITH EXACT REPLACEMENT.
++ - ELECTROLYTIC VALUE MAY BE HIGHER IN SOME RADIOS. ALWAYS SERVICE WITH VALUE IN PARTS LIST.
□□ - NOT PRESENT IN ALL RADIOS.
□ - OUTPUT TRANSFORMER WILL APPEAR SHORTED IF SHORTING TYPE SPEAKER SWITCH IS NOT HELD OPEN.

Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.